Health Canada Santé Canada

Analysis of Mortality Ratios in Cape Breton County and Sydney, Nova Scotia

1951-1994

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Analysis of Mortality Ratios in Cape Breton County and Sydney, Nova Scotia

1951-1994

Environmental Health Directorate
Health Protection Branch

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Introduction

The Town of Sydney, Nova Scotia, has been the site of heavy air, water and soil contamination from coke oven and steel foundry emissions for close to a century. Although polycyclic aromatic hydrocarbons (PAH) are the main contaminants, other hazardous wastes, including polychlorinated biphenyls (PCB), solvents, arsenic and various metals are known to be present[1-5]. Exposure to PAHs, until 1988 when the coke ovens closed, was not limited to workers but also affected Sydney residents, particularly those living downwind of the stack emissions. Industrial effluents into Coke Oven Creek and Muggah Creek, a tidal arm of Sydney Harbour also referred to as the Tar Ponds, contaminated Sydney Harbour leading to a ban of lobster fishing in the south arm of Sydney Harbour and the closure of Harbour Lobster Fishery in 1982.

A mortality study encompassing the years 1979 to 1983 carried out at Health and Welfare Canada revealed the following statistically significant increased mortality rates in the age group 35 to 69 years[6]: 1) Cape Breton County: a) females: all causes of death, all cancers, major cardiovascular, coronary heart and respiratory diseases; b) males: all causes of death, all cancers, major cardiovascular, coronary heart and respiratory diseases, chronic obstructive lung diseases, pneumoconioses, diabetes, liver cirrhosis, cancer of the tongue, mouth and pharynx, stomach and lung cancers; 2) Sydney: a) females: all cancers and lung cancer; b) males: all cancers. The authors of this study also stressed the importance of correct residence coding and recommended that "excess mortality observed at a census subdivision level should be considered to be subject to a residence verification"[6].

Subsequently, the Compensation Health and Safety Committee of the Steelworkers Union in Sydney, Local 1064, investigated the causes of death among coke oven workers and made recommendations to the federal and Nova Scotia governments that a comprehensive epidemiologic and toxicologic program be undertaken to assess the health impact of the industrial pollution not only on workers but also on the general population of Sydney.

In 1996, a Joint Action Group for Environmental Clean-up (JAG) was established as a community-based process by federal and Nova Scotia provincial ministers, the regional mayor and the Cape Breton community to seek solutions to the environmental and health risks associated with the Muggah Creek watershed. In November 1996, JAG's Health Study Working Group recommended to JAG's roundtable that the catchment area for health studies be Cape Breton County, the census division where Sydney is located, and that the following health questions, among others, be considered:

1) Are cancer incidence and mortality rates in Cape Breton County higher than in Nova Scotia/Canada?
2) Do residents of Cape Breton County experience a higher than average incidence of the following conditions: reproductive outcomes, cancer, cardiovascular abnormalities, dermatitis, immune disorders, neurotoxic disorders, respiratory dysfunction?

To address these questions, a two-phase research plan was proposed which, in addition to Cape Breton County, would focus on Sydney since residents of that town are the most exposed to the hazardous wastes generated by the steel industry. If environmental factors in Sydney contribute significantly to the incidence of and/or mortality from a particular disease, it would be expected that the rates of that disease would be significantly higher in Sydney compared to Cape Breton County excluding Sydney.

Research plan

The hypothesis that underlies the research plan is that environmental factors in Sydney may contribute to the incidence of and/or mortality from specific diseases.

A) *Phase 1*: Identification of health risk

The identification of specific diseases significantly increased in Sydney relative to Cape Breton County excluding Sydney would suggest the possibility of an environmental risk factor contributing to these elevated risks. In order to determine whether gradients of risk exists, the geographic areas studied include Nova Scotia, Cape Breton Island, Cape Breton Island excluding Cape Breton County, Cape Breton County, Cape Breton County excluding Sydney and Sydney.

In this initial phase, the following databases were used to investigate disease rates by sex, age, and geographic area.

1) National Mortality Database: this database provided information on death rates from all diseases, cancer and non cancer causes, for the time period 1951 to 1994.
2) The Nova Scotia Cancer Registry: this database provides information on cancer incidence for 1971 onward.
3) The Nova Scotia Atlee Perinatal Database: this database provides information on reproductive outcomes and congenital malformations for 1988 onward.

In addition to the above, address information is being extracted from death certificates, and postal code information from the cancer registry is being updated. This will allow for the investigation of whether risks for specific causes of death and cancer incidence are significantly increased *within* Sydney in residential areas most exposed to hazardous wastes relative to areas least exposed.

The information derived from the first phase of the research plan will give a picture of the health risks prevailing in the geographic areas considered as well as the geographic distribution of mortality and cancer incidence within Sydney. The objective of the second phase of the research plan will be to attempt to identify the factors associated with these health risks.

B) *Phase 2*: Identification of risk factors which could influence the significantly increased mortality ratios observed in Cape Breton County and in Sydney.

Epidemiologic studies will be needed to determine the role of various risk factors, including environmental, lifestyle and occupational ones, that might contribute to the significantly increased disease rates identified in Phase 1. Correlating health information with environmental data should be an important component of Phase 2 studies.

Report Outline

The study described in this report addresses specifically the Joint Action Group – Health Study Working Group's first question as it relates to mortality. All major causes of death, 110 in total, among males and females have been analyzed for the years 1951 to 1994 inclusive by the geographic areas described above. However, to assess causes of death that may be significantly increased in the area closest to the pollution source, the main focus is on comparisons of relative mortality rates between Cape Breton County excluding Sydney, and Sydney. The report includes a main part and supporting documents. The main part consists of the analysis of 98 major causes of death (12 are not reported due to no or very few observed deaths) occurring in Cape Breton County, Cape Breton County excluding Sydney, and Sydney, among males and females aged 20 years and over, and of 21 causes of death, including all major disease groups, for the age group 0 to 14 years. Supporting Document 1[(a)], entitled *Mortality ratios in Cape Breton County excluding Sydney and Sydney by time periods*, contains mortality data for age groups 0 to 19, 20 and over, 20 to 64, and 65 and over, and for the three time periods 1951 to 1965, 1966 to 1980, and 1981 to 1994. Supporting Document 2[(b)], entitled *Mortality ratios in Nova Scotia, Nova Scotia excluding Cape Breton County and Cape Breton County by time periods*, includes the same age groups and time periods as in Supporting Document 1. The data for Nova Scotia excluding Cape Breton Island, Cape Breton Island, and Cape Breton Island excluding Cape Breton County is not shown, as it does not add any useful information for interpretative purposes.

(a) *Mortality ratios in Cape Breton County excluding Sydney and Sydney by time periods, 1998*, Pierre Band, MD, Michel Camus, PhD. Environmental Health Directorate, Health Canada, Ottawa.

(b) *Mortality ratios in Nova Scotia, Nova Scotia excluding Cape Breton County and Cape Breton County by time periods, 1998*, Pierre Band, MD, Michel Camus, PhD. Environmental Health Directorate, Health Canada, Ottawa.

Methods

This report, designed for the public, will be followed by a scientific publication in a peer-reviewed journal. To help understand the statistics used and interpret the results, the following explanations are offered.

Rates and person-years

A *mortality rate* is a measure of the frequency of deaths relative to the underlying population consisting not only of persons but of *person-years*, the number of persons in the population times the number of years spent in the area for which the rate is calculated. The numerator of the rate is the number of deaths and the denominator is the number of person-years.

Explanation: 100,000 persons in population A, each person being observed over one year, represent 100,000 person-years of observation; 30,000 persons in population B observed for 10 years each on average represent 300,000 person-years. Thus, even though population B is 3.3 times smaller than population A, the period of observation is 10 times longer, resulting in 3 times more person-years than in population A. This difference implies that one should expect 3 times more deaths in population B than in population A if the two population are of the same age and gender and experience the same risk factors, because 3 times more person-years were observed in population B than in population A. **A simple example:** if 300 persons died in population A, the mortality rate would be 300 deaths ÷ 100,000 person-years = 3 deaths per 1000 person-years (3 deaths per 1000 persons per year). If 300 persons died in population B, the mortality rate would be 300 deaths ÷ 300,000 person-years = 1 death per 1000 person-years (1 death per 1000 persons per year).

Ratios and SMRs

Absolute mortality rates such as "1 per 1000 persons per year" are difficult to interpret since the mortality rate to *expect* is not known. A more meaningful number is a *rate ratio* or *relative rate* which expresses directly by how much a local mortality rate is higher or lower than a referent mortality rate (mortality rate in a population used as reference or comparison) after adjusting for age, gender and year differences. In this study, we used *Standardized Mortality Ratios (SMRs)*. (Standardization is one method of 'adjustment' to minimize the effects of age-gender-time differences between populations).

A "SMR" is the ratio of *observed* deaths from a certain cause that have occurred in a population over the study period, to the number of deaths *expected* in this population if it had experienced the same "gender-age-calendar year-specific" mortality rates from this cause as did the referent (comparison) population.

How is a SMR calculated? For example, to compute "expected deaths" for males and females separately in Sydney, the person-years observed in a given age-group (five year age groups were used) and in a given calendar period (five year intervals were used) are multiplied by the corresponding reference population mortality rate for the same gender in the same age-group and calendar-period. This is repeated for each combination of gender, age-group and calendar-period. Then these gender-age-calendar period-specific expected values are summed to obtain the total number of *expected* deaths in the study population. Dividing the number observed (say 60 deaths) by the number expected (say 40) for a given cause of death provides the SMR (60/40 = 1.50).

How to interpret a SMR? The SMR tells how much more mortality than "expected" occurred in the population of interest. For instance, a ratio of 1.00 for a given cause of death among women means that women in the population of interest, say in Cape Breton County, have the same mortality experience for that cause of death as the reference female population for each group of age and calendar time period. Similarly, a ratio of 1.50 means that women died on average 1.5 times more from a given cause of death than did the comparison population of women of the same age in the same calendar time periods; this ratio can also be interpreted as a "50% excess mortality". On the other hand, SMRs smaller than 1.00 (e.g., 0.85) mean that the study population died proportionately less frequently from a given cause, in this case 15% less, than the reference population.

The risk gradient and the ratio of SMRs

Provided that Sydney and Cape Breton County excluding Sydney (CBC-S) had similar age structures over the study period, an assumption which was verified, SMRs for Sydney could be compared to SMRs for CBC-S. The *ratio* of a Sydney SMR to the SMR of CBC-S for the same cause of death estimates the *risk gradient* between Sydney and CBC-S. For example, a SMR of 1.50 for a given cause of death in Sydney and a corresponding SMR of 1.20 in CBC-S yields a "between-area" ratio of 1.25. This would mean that the risk gradient for that cause would be 1.25 times or 25% higher in Sydney than in CBC-S.

Statistical significance

Although a SMR and a SMR ratio indicate something about the difference of mortality rates between two populations, estimates *per se* are not sufficient to appreciate *how different* the mortality experiences of two populations are *statistically*. Random events happen all the time, and any observed number of deaths is a *measurement* which reflects partly a *true* underlying component that one attempts to measure accurately, and partly a *random* component due to chance alone. For example, a SMR of 1.50 representing three observed deaths compared to two expected deaths for a rare cause of death is less "meaningful" than a SMR of 1.50 representing 150 observed deaths compared to 100 expected deaths from a common cause of death, because it comprises a relatively more important random component than the latter. The former SMR of 1.50 is said to be *less significant statistically* than the latter SMR of 1.50 for the following reason. In the first case, if there were really no difference between the study and reference populations, a single excess death could easily have occurred by chance alone, changing the SMR from 1.00 to 1.50; therefore the SMR of 1.50 is in fact quite **close to** 1.00 or quite compatible with a true absence of effect because it could easily be a random effect of chance alone. In the second case however, if there were really no difference between the study and the reference populations, it would be a very unlikely coincidence that 50 excess deaths would have occurred by random chance alone; so the same SMR of 1.50 is quite **far from** 1.00 or quite incompatible with a true underlying SMR of 1.00. This statistical "distance" between the measured SMR and 1.00 (the SMR if there were really no difference between the two populations) is called *"statistical significance"*.

P-values and confidence intervals

Statistical significance is measured or quantified with the *P-value*, the *probability* of obtaining *by chance alone* a SMR as extreme or more extreme than that observed if the true underlying SMR were 1.00. Following an arbitrary but standard decision-making "rule of thumb" used to reject or not hypotheses, an estimate (e.g., SMR, ratio of SMRs) with a P-value greater than 0.05, meaning with a probability greater than 5% that this estimate could be as or more extreme than the estimated ratio by chance alone, was interpreted as not statistically significant, that is "not statistically different from unity" (the result is substantially compatible with the null hypothesis of no difference or no effect).

An alternative to the P-value and a more informative statistic to assess the statistical or random variability of an estimate is to compute the estimate's *confidence interval* (CI), a range of values that has a specific probability (95% is a conventional confidence level used) of including the true underlying value of the estimate. It suggests the range of true values that are most compatible with the observed estimate's value. Thus, roughly, a 95% CI (95% confidence interval) of 1.00-1.66 means that it is very likely that the true underlying SMR lies within the limits of that interval. Inversely, it is very unlikely that we would have observed a SMR as or more extreme than the one observed, 1.50 in the example above, if the true underlying SMR were smaller than 1.00 or larger than 1.66. By indicating a range of values statistically compatible with the observed value, confidence intervals are more informative than P-values.

The study design used in this report is referred to as an "ecologic" epidemiologic study; ecologic studies look at aggregate outcomes and exposure categories, for instance, population mortality rates from heart attacks in geographic areas. In such studies, exposure information about individual subjects is not available. The degree to which the observed number of deaths can differ from the expected number of deaths by chance alone (randomly) is called "random variance". Random variance in ecological studies is assumed to follow a particular statistical form or distribution called the *"Poisson distribution."*

Data analysis

In Canada, counties or census divisions are composed of census subdivisions, such as individual municipalities, which are the smallest geographic units to which deaths are normally coded. Mortality data for all geographic areas considered were retrieved from the National Mortality Database of Statistics Canada. Population data were available from Statistics Canada for the decennial and quinquennial censuses of 1951, 1956, and thereafter up to 1996; populations for intercensal years were estimated by linear interpolation within sex and age groups. Person-years were regarded as the unit of observation for analysis; values assigned to each person-year were age, calendar year, geographic area and vital status. Person-years were calculated within each geographic area for males and females by five-year age groups and five-year calendar periods. Person-years distribution by geographic areas are shown in Table 2. Mortality was assessed using standardized mortality ratios (SMRs), which are the ratios of observed number of deaths in the area under study to the expected values calculated by applying the reference population sex, age, calendar year and cause specific mortality rates to the population person-years distributions of each study area. Canadian population rates were used as reference to generate expected number of deaths. Because of its larger population, using Canadian population rates as a reference, provides more stable mortality rates and

statistics by age and sex groups for most causes of death than if Nova Scotia rates were used as reference. However, western and central Canada have lower mortality rates than Maritime Canada for several causes of death; thus, comparison with Canada would tend to overestimate mortality in Maritime Canada for these causes. This potential "overestimation bias" is of no concern in the present study since its main focus is to investigate whether a risk gradient exists between specific geographic areas, or in other words to underline the causes of death in Sydney which are higher with respect to *both* Canadian mortality *and* the mortality rates in Cape Breton County excluding Sydney. Also, the use of Canadian rates enables documentation as to whether mortality from a given cause is higher in Cape Breton County than in Nova Scotia in addition to being higher than in Canada. As some might argue about the choice of the reference population, all statistical analysis were repeated using Nova Scotia excluding Cape Breton County as reference: results did not change appreciably. Two-sided 95% CI for the SMRs were calculated under the assumption that the observed number of deaths followed a Poisson distribution[7]. The Poisson chi-square heterogeneity-test statistic[8] was used to test whether SMRs were significantly higher (P-value level greater than 0.05) in Cape Breton County excluding Sydney compared to Sydney or in Sydney relative to Cape Breton County excluding Sydney.

Causes of death: During the study period, causes of death were coded according to the International Classification of Diseases (ICD) codes in effect at the time. Codes for all causes of death were reconciled to the 9th revision of the International Classification of Diseases[9]. Codes for specific causes of death may be missing from older versions of the International Classification of Diseases and thus may not be available for the entire study duration (1951-1994); for such cases, the years for which these codes are available are specified in the tables. Causes of death and ICD-9 codes are shown in Table 2.

Place of residence at time of death: The place of residence at time of death was obtained from the name of the municipality as contained on the death certificate.

Address misclassification: When studying disease rates at the census subdivision level, correct address information must be ensured[6]. The reason is that residents from the outskirts of a town and serviced by that town's post office may indicate the name of the town in their postal address instead of the name of the smaller locality they reside in. This address misclassification will often be reflected on the death certificate. Sydney is part of Cape Breton County's census division. Since a major purpose of this report is to compare relative mortality rates between Sydney and Cape Breton County excluding Sydney, if a proportion of residents living in localities at the periphery of Sydney have, in their address, Sydney as their municipality of residence, mortality rates would be spuriously increased in Sydney and spuriously decreased in Cape Breton County excluding Sydney.

To investigate this potential problem, Statistics Canada verified all 1180 deaths certificates originating from Cape Breton County in the year 1991 and matched them with an extensive dataset containing the exact postal code and street addresses of all deaths that occurred in Canada in that year. Out of 365 death certificates indicating Sydney as the place of residence at the time of death, only 305 had a postal code and/or a street address proving that the true address was Sydney. The wrong attribution of 60 deaths to Sydney was due to death certificates of 62 residents: 60 were residents of neighbouring towns and two were actually from Sydney but had the name of another municipality of residence written on the death certificate. The implication is that even if there were no difference in mortality rates between Sydney and Canada, the residential misclassification error would lead to an erroneous SMR of 1.20 (365/305) instead of 1.00; thus, for the year 1991, SMRs for all causes of deaths were overestimated by 20% in Sydney due to Sydney being wrongly indicated as the municipality of residence on the death certificates. Likewise, mortality rates in Cape Breton County excluding Sydney would have been underestimated by about 7% (60/875) in Cape Breton County excluding Sydney, resulting in an overall SMR of about 0.93 instead of 1.00. These errors are compounded when the risk gradient between Sydney and Cape Breton County excluding Sydney is computed; the ratio of SMRs, even if there were no real difference in mortality rates would be 1.20/0.93 or 1.29 instead of 1.00. Address misclassification was slightly less for cancer causes than for non cancer causes, but this difference was not statistically significant.

It was estimated at Statistics Canada that address misclassification originated in an area within a radius of about two miles from the legal boundaries of the Town of Sydney. A meeting was held with the superintendant of Sydney's post office and with staff from Cape Breton Regional Municipality, Urban Planning, to determine the area represented by a two-mile radius from the Town of Sydney (Figure 1) and serviced by Sydney's post office. Based on population estimates for this area provided by the Planning Division which took into account the development pattern of residential areas around Sydney, and on population census data for Cape Breton County and Sydney, it was estimated that the average misclassification error for the entire time period of this study (1951 to 1994) was about 10% for Sydney (overestimate) and 3% (underestimate) for Cape Breton County excluding Sydney. Due to this problem, two sets of SMRs are shown in the tables: uncorrected and corrected for address misclassification. For cancer causes, corrected SMRs are obtained by dividing observed values by 1.099 for Sydney and 0.965 for Cape Breton County excluding Sydney; for non cancer causes of deaths, observed values are divided by 1.128 and 0.949 respectively for Sydney and Cape Breton County respectively.

Two points must be stressed. Firstly, these correction factors affect only the SMRs for Sydney and for Cape Breton County excluding Sydney; SMRs for the census division, Cape Breton County, remain unchanged. Secondly, and more importantly, the correction factor is a "best guess" and should not be taken at face value for the following reasons:

1) verification of address was done for only 1 out of the 44 years of the study period;
2) the two-mile radius is approximate;
3) the populations within these two miles are approximate;
4) the age distribution of the population within this two-mile radius is unknown;
5) the proportion of residents within this two-mile radius using Sydney as their address is unknown and may have varied over time.

The true SMRs for Cape Breton County excluding Sydney and for Sydney can be expected to lie between the uncorrected and corrected values displayed in the tables.

Results

Uncorrected and corrected standardized mortality ratios for 98 causes of death, by sex for Cape Breton County (CBC), Cape Breton County excluding Sydney (CBC-S) and Sydney (S) for the years 1951 to 1994 are shown in Table 3 for the age group 20 years and over. Results for 21 causes of death in the age group 0 to 14 years are reported in Table 4. Cancer sites with statistically significantly increased SMRs are summarized below by geographic areas for cancer and non cancer causes of death.

A. Age group 20 years and over

1. Cape Breton County:

a) Cancer causes of death (Table 5): cancer sites with significantly increased SMRs:

1. males and females: all cancers, stomach, colon, rectum and intestine not otherwise specified, pancreas and lung;
2. males: lip;
3. males and both genders combined: esophagus;
4. females and both genders combined: colon (years 1969-1994);
5. females: breast and cervix uteri
6. both genders combined: all leukemias. The average number of excess deaths per year was at least one (44 deaths or more for the study period) for all cancer sites except for cancer of the lip and esophagus, and for leukemias.

b) Non cancer causes of death (Table 6): all causes of death listed in the table were significantly increased in both males and females except for the following:

1. males and both genders combined: cerebrovascular diseases and diseases of the genitourinary system;
2. females and both genders combined: diseases of blood and blood forming organs, hypertensive heart diseases, diseases of the skin and subcutaneous tissue, and congenital abnormalities;
3. males only: tuberculosis, mental disorders, alcoholic psychoses and other diseases related to alcohol abuse; pneumoconioses and coal worker's pneumoconiosis, liver and pancreatic diseases;
4. females only: multiple sclerosis and complication of pregnancy;
5. both genders combined only: diseases of kidney and ureter. Considering all non cancer causes of death with significantly elevated SMRs in both genders combined, the majority had excess deaths greater than one per year on average.

It must be pointed out that in Nova Scotia excluding Cape Breton County (Supporting Document 2), relative rates for all causes of death and for all malignant neoplasm are around 1.00, close to the Canadian rates. Furthermore, the majority of cancer and non cancer causes with significantly increased SMRs are either significant only in Cape Breton County or significantly higher in Cape Breton County compared to Nova Scotia excluding Sydney (Supporting Document 2). Striking examples are lung and breast cancer, diabetes, and diseases of the circulatory, respiratory and digestive systems (Supporting Document 2).

2. Cape Breton County excluding Sydney:

a) Cancer causes of death (Table 7): cancer sites with a significant gradient (SMRs significantly increased in Cape Breton County excluding Sydney relative to Sydney):

uncorrected SMRs:

1. males and both genders combined: stomach cancer;
2. males: connective tissue.

corrected SMRs:

These same two sites were significantly increased in males and in both genders combined relative to Sydney.

Two cancer sites, lip in males (corrected and uncorrected SMRs), and pancreas in females (corrected SMRs) were statistically significantly increased in Cape Breton County excluding Sydney only but without a significant gradient

relative to Sydney. The average number of excess deaths per year was at least one for stomach and pancreatic cancer (corrected SMRs).

b) Non cancer causes of death (Table 8): compared to the results of uncorrected SMRs, correcting for address misclassification increased the number of non cancer causes of death in Cape Breton County excluding Sydney. All causes with a significant gradient (corrected SMRs significantly increased in Cape Breton County excluding Sydney relative to Sydney) were observed in both males and females except for the following:

1. females and both genders combined: essential hypertension and diseases of the genitourinary tract;
2. males only: pneumoconioses and injury and poisoning;
3. females only: diabetes and complications of pregnancy;
4. both genders combined only: bronchitis and emphysema.

Considering all non cancer causes of death with significantly elevated SMRs in both genders combined, the majority had excess deaths greater than one per year on average. Correcting for address misclassification did not appreciably change the results.

3. Sydney:

a) Cancer causes of death (Table 9): cancer sites with a significant gradient (SMRs significantly increased in Sydney relative to Cape Breton County excluding Sydney):

uncorrected SMRs:

1. males and females: all cancers, colon, rectum and intestine not otherwise specified, colon (years 1969-1994) and multiple myeloma;
2. males and both genders combined: tongue, mouth and pharynx, esophagus, lung;
3. females and both genders combined: major salivary glands;
4. males: prostate cancer and myeloid leukemias;
5. females: breast cancer

corrected SMRs:

1. males and both genders combined: colon (years 1969-1994) and multiple myeloma;
2. females and both gender combined: major salivary glands;
3. both gender combined: esophagus.

Non melanoma skin cancer in females and leukemias in both genders combined (uncorrected SMRs), and cancer of the esophagus, colon, rectum and intestine not otherwise specified in males and breast cancer in females (corrected SMRs) were statistically significantly increased in Sydney only but without a significant gradient relative to Cape Breton County excluding Sydney. The average number of excess deaths per year was less than one (corrected SMRs); however, for colon cancer, the data only encompasses 26 out of the 44 years of the entire study duration.

b) Non cancer causes of death (Table 10): correcting for address misclassification led to a reduction in the number of statistically significant non cancer causes of death. Causes with a significant gradient (corrected SMRs significantly increased in Sydney relative to Cape Breton County excluding Sydney) were mainly observed in the "mental disorders" and "nervous system and sense organs" disease groups except for diabetes, nutritional deficiency disorders and chronic liver diseases and cirrhosis; diabetes in males had the largest number of excess deaths. Diseases significant in Sydney only but without a gradient were few and occurred only in the nervous system and sense organ category except for liver diseases.

B. Age group 0 to 14 years

SMRs, whether uncorrected or corrected, were not significantly increased in Sydney for any of the causes of death studied. In Cape Breton County and in Cape Breton County excluding Sydney, SMRs were significantly increased in the following conditions:

1. males and females: all causes of death, diseases of the respiratory system and pneumonia;
2. males and both genders combined: endocrine, nutritional, metabolic diseases, and immunity disorders.

In addition, deaths from injury and poisoning, and from congenital abnormalities (0 to 1 year) in females and both genders combined, and from certain conditions arising in the perinatal period (0 to 1 year) in males and both genders combined, were significantly increased only in Cape Breton County excluding Sydney.

Discussion

The main objective of this study, which represents a comprehensive overview of mortality from all major causes of death over a 44-year period in Sydney and in Cape Breton County, is to document whether specific causes of death have significantly increased risk gradients compared to Cape Breton County excluding Sydney. Due to the problem of address misclassification, the results of this study as they pertain to census subdivision levels (Sydney and Cape Breton County excluding Sydney) have a lesser degree of precision than those pertaining to the census division (Cape Breton County). Although it is clear that for Sydney, results of uncorrected SMRs are overestimates, it must be re-emphasized that these estimates of the degree of misclassification, based on the limited data available, should be viewed merely as indicative of the likely order of magnitude of the residential misclassification. Forthcoming cancer incidence data from the Nova Scotia Cancer Registry might provide additional information to help interpret the results of cancer mortality in Sydney. Cancer sites remaining significantly increased in Sydney relative to Cape Breton County excluding Sydney, after correction for residential misclassification, are cancer of the major salivary glands, esophagus, colon, breast and multiple myeloma. Sydney also shared with Cape Breton County significant excess risks for a number of cancer sites, in particular cancer of the stomach, pancreas, lung and cervix. Non cancer diseases significantly increased in Sydney relative to Cape Breton County excluding Sydney were mainly mental disorders and diseases of the nervous system and sense organs; diabetes, chronic liver disease and cirrhosis in males and multiple sclerosis particularly in females were also significantly elevated. The reason for the excess risks of mental disorders and Alzheimer's disease may be related to the vicinity of Cape Breton Hospital, a mental institution located within one mile of Sydney's boundary which closed in 1995. In addition, Sydney shared with Cape Breton County significant excess risks for a number of non cancer diseases, in particular diseases of the circulatory system including ischemic heart disease and acute myocardial infarction, and diseases of the respiratory and digestive systems. It is of interest to note that, after correction for address misclassification, the majority of cancer sites with a significant gradient were observed in Sydney relative to Cape Breton County excluding Sydney, whereas for non cancer diseases it was the reverse.

The study described in this report is an ecologic hypothesis-generating mortality study and has the limitations associated with all studies of this type. In particular, information on individual environmental and non environmental exposures that may contribute to mortality from specific diseases with significant excess deaths is lacking; for instance, no information is available on cigarette smoking or occupational history which would help to determine the role of these factors in contributing to lung cancer. Also, because of multiple comparisons, some statistically significant results may have occurred by chance alone. Although statistical methods may be used to adjust for multiple comparisons[10,11], it has been argued that no adjustment is preferable[12]. Despite their inherent limitations, mortality studies represent the only method that enables the reliable investigation of all possible causes of deaths in large populations over long periods of time. Mortality studies have been used to determine the geographic distribution of disease to test hypotheses about identified disease clusters[13-15]; they have been useful to suggest environmental risks which were confirmed by hypothesis testing epidemiologic studies[16, 17], and to investigate health effects of point sources of pollution[18].

Recommendations

Based on the results of this study, which indicate that relative mortality rates from certain diseases are in excess in Sydney compared to Cape Breton County excluding Sydney, the following is recommended:

1. Sydney

a) Case-control epidemiologic studies are needed to determine the respective role of environmental and other risk factors, targeting as priority those diseases with a significant risk gradient in Sydney and those significantly increased in Sydney only relative to Cape Breton County excluding Sydney after correction for residence misclassification. Taking a number of cases into consideration, these diseases are:

1. cancer of the colon in both genders combined (taking into account the entire study duration);
2. breast cancer in females and diabetes in males.

Since mortality studies assess fatal health conditions and do not detect less severe non fatal forms of disease, attention should also be given to diseases with high incidence/mortality ratios such as multiple sclerosis. With respect to cancer, although risk factors associated with colon cancer are mainly familial, genetic and dietary, as well as polyps and inflammatory bowel diseases[19], excess deaths have been reported among coke oven and coke gas plant workers, and workers in the iron and steel industry[20-22]. Breast cancer has been associated with a number of known or suspected risk factors including genetic and hormonal[23]. Although PAHs induce breast cancer in experimental animals[24], PAH association with breast cancer remains unproven. PAHs are rapidly eliminated from the blood and correlation between exposure, which antedates disease occurrence by several decades, and breast cancer is difficult to document[25]. However, recent studies have revealed the presence of PAH DNA-adducts in breast tissue, suggesting the possibility of malignant transformation of breast cells from PAH exposure[26]. Exposure to PCBs has also been suggested to be associated with breast cancer risk, but the evidence is conflicting[25].

b) Cohort study of coke ovens and steel workers. A significant risk gradient for lung cancer and myeloid leukemias was observed in males in Sydney relative to Cape Breton County excluding Sydney before correction for address misclassification. Working in coke ovens and benzene exposure are well known risk factors for lung cancer[27,28] and myeloid leukemias respectively[29]. A cohort study of coke and steel workers would clarify which diseases are attributable to occupational exposure in males and may shed light on associations between specific diseases in the general population and environmental exposure from industrial pollution.

c) Periodic monitoring of mortality rates would need to be considered as a means to evaluate the effect of the cessation, in 1988, of the main airborne source of industrial pollution, and assess the potential impact of current environmental conditions.

2. Cape Breton County

Several cancer and non cancer conditions are not only significantly increased in Cape Breton County but significantly increased when compared to Nova Scotia excluding Cape Breton County and thus represent major health problems that will need to be addressed. Public health implications are particularly obvious for conditions for which preventive and/or early detection measures are effective, such as cancer of the cervix and of the breast and diseases associated with unhealthy lifestyle.

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Table 1: Person-years distribution by age group and time periods

Age group	Sydney			CBC excluding Sydney			Nova Scotia excluding Sydney			Canada		
	Person-years			Person-years			Person-years			Person-years		
	1951-65	1966-80	1981-94	1951-65	1966-80	1981-94	1951-65	1966-80	1981-94	1951-65	1966-80	1981-94
Males												
0-1	6,130	3,610	2,150	19,545	13,305	9,330	125,995	100,290	85,195	3,163,275	2,782,790	2,718,265
1-14	80,395	62,910	34,910	257,730	225,605	149,860	1,625,105	1,618,360	1,224,570	39,236,170	44,375,595	37,222,575
15-34	65,095	73,970	58,545	189,770	232,070	215,895	1,443,675	1,899,145	2,028,745	36,900,255	55,456,570	61,395,890
35-49	45,420	34,665	32,395	122,610	110,080	127,365	908,505	909,430	1,177,770	23,849,380	28,938,225	37,427,035
50-64	27,625	36,550	26,695	79,495	97,420	89,635	604.700	776,455	771,080	15,510,570	21,514,255	24,842,875
65-74	11,110	12,930	15,790	32,535	36,340	43,245	266,880	316,485	386,575	6,377,295	8,112,350	10,953,560
75-84	4,720	5,725	7,305	14,455	14,605	18,430	129,000	144,535	181,840	2,722,520	3,515,590	4,888,055
85+	875	1,455	1,450	2,525	3,505	3,090	28,030	37,295	39,630	469,580	828,780	1,075,185
Sum	241,370	231,815	179,240	718,665	732,930	656,850	5,131,890	5,801,995	5,895,405	128,229,045	165,524,155	180,523,440
Females												
0-1	5,765	3,485	2,150	18,690	12,330	8,985	121,580	95,690	80,925	3,016,480	2,644,830	2,588,000
1-14	76,050	60,095	33,515	246,840	212,845	142,885	1,555,930	1,538,790	1,171,710	37,605,795	42,319,435	35,389,930
15-34	71,680	73,640	60,485	196,560	221,190	213,285	1,398,705	1,838,440	2,008,255	36,641,830	54,606,120	60,929,490
35-49	47,115	39,235	35,235	119,695	111,185	127,055	877,510	905,545	1,178,320	23,372,700	28,484,360	37,366,555
50-64	26,755	39,310	31,750	69,095	100,085	95,500	574,145	788,280	807,160	14,843,465	22,340,940	25,707,015
65-74	12,265	16,360	21,520	30,655	38,620	54,460	271,945	350,085	460,415	6,407,020	9,378,560	13,393,445
75-84	5,930	9,355	13,040	13,415	18,635	27,890	140,625	194,185	264,850	2,916,715	4,860,420	7,433,495
85+	1,455	3,200	4,300	3,000	5,190	7,335	37,705	61,245	91,795	620,135	1,377,605	2,412,230
Sum	247,015	244,680	201,995	697,950	720,080	677,395	4,978,145	5,772,260	6,063,430	125,424,140	166,012,270	185,220,160
Both												
0-1	11,890	7,095	4,300	38,230	25,635	18,315	247,575	195,980	166,120	6,179,760	5,427,615	5,306,265
1-14	156,445	123,005	68,425	504,570	438,450	292,745	3,181,035	3,157,150	2,396,280	76,841,965	86,695,030	72,612,505
15-34	136,775	147,610	119,030	386,330	453,260	429,180	2,842,380	3,737,585	4,037,000	73,542,090	110,062,685	122,325,385
35-49	92,530	73,900	67,630	242,305	221,265	254,420	1,786,015	1,814,975	2,356,090	47,222,080	57,422,585	74,793,590
50-64	54,380	75,860	58,445	148,590	197,505	185,135	1,178,840	1,564,735	1,578,240	30,354,040	43,855,190	50,549,890
65-74	23,375	29,290	37,310	63,190	74,955	97,710	538,820	666,570	846,995	12,784,315	17,490,910	24,347,005
75-84	10,650	15,080	20,345	27,865	33,240	46,320	269,625	338,720	446,690	5,639,240	8,376,005	12,321,550
85+	2,330	4,650	5,750	5,520	8,700	10,425	65,735	98,535	131,425	1,089,710	2,206,390	3,487,420
Sum	488,375	476,490	381,235	1,416,600	1,453,010	1,334,250	10,110,025	11,574,250	11,958,840	253,653,200	331,536,410	365,743,610

Table 2: Cause of death and ICD-9 codes

Cause of death	ICD-9 Codes
All causes	001-999
Infectious and parasitic diseases	001-139
Intestinal infectious diseases	001.0-009
Tuberculosis	010-018, excluding 011.4, 137
Bacterial diseases	000-009, 020-025, 026.1, 027, 030-038, 040-041
Viral diseases	045-057, 060-061, 065-066, 072-079, 138, 139.1, 771.1 (excl. 049.8,049.9)
Malignant neoplasms	140-208
Lip	140
Major salivary glands	142
Tongue, mouth, pharynx	141, 143-149
Esophagus	150
Stomach	151
Colon, rectum, intestine NOS*	153-154, 159.0
Colon and rectum (years 1969-1994)	153-154
Colon (years 1969-1994)	153
Rectum, rectosigmoid junction, and anus	154
Liver and intrahepatic bile ducts	155.0, .1
Pancreas	157
Larynx	161
Lung and bronchus (years 1958-1994)	162.2,-.9
Bone and articular cartilage	170
Connective and other soft tissue (years 1958-1994)	171
Melanoma of skin	172
Other neoplasm of skin	173
Breast (female)	174
Cervix uteri	180
Body of uterus	182
Ovary and other uterine adnexa	183
Prostate	185
Testis	186
Bladder (year 1958-1994)	188
Kidney, renal pelvis and ureter	189.0, .1, .2
Brain (years 1958-1994)	191
Thyroid, other endocrine glands and related structures	193, 194
Lymphosarcoma, reticulosarcoma, other malignant neoplasms of lymphoid and histiocytic tissue (mainly non-Hodgkin's lymphoma)	200, 202
Hodgkin's disease	201
Multiple myeloma	203
Leukemias	204-208
Acute lymphoid leukemia (years 1969-1994)	204.0

NOS = not otherwise specified.

Table 2: Cause of death and ICD-9 codes

Cause of death	ICD-9 Codes
Chronic lymphoid leukemia (years 1969-1994)	204.1
Myeloid leukemias (years 1969-1994)	205
Acute myeloid leukemia (years 1969-1994)	205.0
Chronic myeloid leukemia (years 1969-1994)	205.1
Ill-defined and secondary site	195-199
Benign neoplasms	210-239
Endocrine, nutritional, and metabolic diseases and immunity disorders	240-279
Thyroid gland	240-246
Diabetes mellitus	250
Nutritional deficiencies (years 1953-1994)	260-269
Other metabolic disorders	270-278
Blood and blood-forming organs	280-289
Mental disorders	290-319
Neurotic, personality and non-psychotic mental disorders (years 1969-1994)	300-316
Alcoholic psychoses, alcohol dependence syndrome, alcohol abuse and accidental poisoning by alcohol NOS*	291, 303, 305.0, E860
Non-psychotic mental disorders due to organic brain damage (years 1969-1994)	310
Nervous system and sense organs	320-389
Inflammatory diseases of central nervous system	320-326
Hereditary, degenerative and other central nervous system	330-332, 333.1-333.9, 334-336, 341-344, 347-349, 356.1, 358-359
Alzheimer's disease (years 1979-1994)	331.0
Parkinson's disease	332.0
Motor neurone disease	335.2
Multiple sclerosis	340
Epilepsy (years 1969-1994)	345
Diseases of the circulatory system	390-459
Acute rheumatic fever and chronic rheumatic heart diseases	390-398
Essential hypertension	401
Hypertensive heart disease (years 1969-1994)	402
Ischemic heart disease	410-414, 429.2
Acute myocardial infarction (years 1969-1994)	410
Cerebrovascular disease (stroke)	430-438
Diseases of arteries, arterioles & capillaries	440-448
Atherosclerosis	440
Aortic aneurysm	441
Diseases of veins, lymphatics and other circulatory system	415.1, 451-459
Diseases of respiratory system	460-519
Pneumonia	480-486
Influenza	487
Bronchitis and emphysema	490-492
Chronic bronchitis and emphysema (years 1969-1994)	491-492
Asthma	493
Pneumoconioses	500-505

NOS = not otherwise specified.

Table 2: Cause of death and ICD-9 codes

Cause of death	ICD-9 Codes
Coal Worker's pneumoconiosis (years 1962-1994)	500
Diseases of digestive system	520-579
Ulcers	531-534
Diseases of liver	570-573
Chronic liver disease and cirrhosis	571
Alcoholic liver diseases (years 1969-1994)	571.0-.3
Diseases of pancreas	577
Diseases of genitourinary system	580-629
Diseases of kidney and ureter	580-593
Nephritis	580-583
Calculus of kidney and ureter (years 1952-1994)	592
Complications of pregnancy, child birth, and the puerperium	630-676
Diseases of the skin and subcutaneous tissue	680-709
Diseases of the musculoskeletal system and connective tissue	710-739
Congenital abnormalities	740-759
Auto-immune diseases (years 1979-1994)	245.2, 255.4, 279.4, 281, 283, 340, 358, 446.2, 555, 580, 694.4, 696.0, .1, 710.0, .1, .2, 714
Certain conditions originating in the perinatal period	760-779
Sudden infant death syndrome	798.0
Injury and poisoning	800-999

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
All causes								
Males								
Sydney	7377	5756	1.28	(1.25, 1.31)*	6674	5756	1.16	(1.13, 1.19)
CBC-S	18303	15925	1.15	(1.13, 1.17)	19034	15925	1.20	(1.18, 1.21)*
CBC	25680	21682	1.18	(1.17, 1.20)	25680	21682	1.18	(1.17, 1.20)
Females								
Sydney	6096	5190	1.17	(1.15, 1.20)*	5513	5190	1.06	(1.03, 1.09)
CBC-S	12645	11429	1.11	(1.09, 1.13)	13157	11429	1.15	(1.13, 1.17)*
CBC	18741	16619	1.13	(1.11, 1.14)	18741	16619	1.13	(1.11, 1.14)
Both								
Sydney	13473	10946	1.23	(1.21, 1.25)*	12187	10946	1.11	(1.09, 1.13)
CBC-S	30948	27355	1.13	(1.12, 1.14)	32190	27355	1.18	(1.16, 1.19)*
CBC	44421	38301	1.16	(1.15, 1.17)	44421	38301	1.16	(1.15, 1.17)
Infectious and parasitic diseases								
Males								
Sydney	67	60	1.11	(0.86, 1.41)	59	60	0.98	(0.75, 1.27)
CBC-S	196	176	1.12	(0.96, 1.28)	207	176	1.18	(1.02, 1.35)
CBC	263	236	1.11	(0.98, 1.26)	263	236	1.11	(0.98, 1.26)
Females								
Sydney	45	42	1.08	(0.79, 1.45)	40	42	0.96	(0.68, 1.30)
CBC-S	97	98	0.99	(0.80, 1.20)	102	98	1.04	(0.85, 1.26)
CBC	142	140	1.01	(0.85, 1.20)	142	140	1.01	(0.85, 1.20)
Both								
Sydney	112	102	1.10	(0.90, 1.32)	99	102	0.97	(0.79, 1.18)
CBC-S	293	274	1.07	(0.95, 1.20)	309	274	1.13	(1.00, 1.26)
CBC	405	376	1.08	(0.97, 1.19)	405	376	1.08	(0.97, 1.19)
Intestinal infectious diseases								
Males								
Sydney	7	4	1.79	(0.72, 3.69)	6	4	1.59	(0.59, 3.41)
CBC-S	9	11	0.84	(0.38, 1.59)	9	11	0.88	(0.41, 1.65)
CBC	16	15	1.09	(0.62, 1.77)	16	15	1.09	(0.62, 1.77)
Females								
Sydney	3	5	0.56	(0.11, 1.62)	3	5	0.49	(0.09, 1.53)
CBC-S	5	11	0.44	(0.14, 1.02)	5	11	0.46	(0.15, 1.05)
CBC	8	17	0.47	(0.20, 0.93)	8	17	0.47	(0.20, 0.93)
Both								
Sydney	10	9	1.07	(0.51, 1.98)	9	9	0.95	(0.43, 1.82)
CBC-S	14	22	0.63	(0.34, 1.06)	15	22	0.66	(0.37, 1.10)
CBC	24	32	0.76	(0.49, 1.13)	24	32	0.76	(0.49, 1.13)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Tuberculosis								
Males								
Sydney	36	28	1.26	(0.89, 1.75)	32	28	1.12	(0.77, 1.58)
CBC-S	99	79	1.25	(1.01, 1.52)	104	79	1.31	(1.07, 1.59)
CBC	135	108	1.25	(1.05, 1.48)	135	108	1.25	(1.05, 1.48)
Females								
Sydney	15	17	0.86	(0.48, 1.42)	13	17	0.76	(0.41, 1.30)
CBC-S	45	42	1.07	(0.78, 1.43)	47	42	1.12	(0.83, 1.49)
CBC	60	60	1.01	(0.77, 1.30)	60	60	1.01	(0.77, 1.30)
Both								
Sydney	51	46	1.11	(0.83, 1.46)	45	46	0.99	(0.72, 1.32)
CBC-S	144	122	1.19	(1.00, 1.40)	152	122	1.25	(1.06, 1.46)
CBC	195	167	1.17	(1.01, 1.34)	195	167	1.17	(1.01, 1.34)
Bacterial diseases								
Males								
Sydney	11	10	1.11	(0.55, 1.98)	10	10	0.98	(0.47, 1.82)
CBC-S	26	26	0.98	(0.64, 1.44)	27	26	1.04	(0.69, 1.51)
CBC	37	36	1.02	(0.72, 1.40)	37	36	1.02	(0.72, 1.40)
Females								
Sydney	16	11	1.39	(0.80, 2.27)	14	11	1.24	(0.68, 2.07)
CBC-S	25	25	1.01	(0.65, 1.49)	26	25	1.06	(0.70, 1.55)
CBC	41	36	1.13	(0.81, 1.53)	41	36	1.13	(0.81, 1.53)
Both								
Sydney	27	21	1.26	(0.83, 1.84)	24	21	1.12	(0.72, 1.67)
CBC-S	51	51	1.00	(0.74, 1.31)	54	51	1.05	(0.79, 1.37)
CBC	78	73	1.07	(0.85, 1.34)	78	73	1.07	(0.85, 1.34)
Viral diseases								
Males								
Sydney	1	3	0.34	(0.00, 1.90)	1	3	0.30	(0.00, 1.84)
CBC-S	4	8	0.50	(0.13, 1.28)	4	8	0.53	(0.15, 1.32)
CBC	5	11	0.46	(0.15, 1.07)	5	11	0.46	(0.15, 1.07)
Females								
Sydney	2	3	0.65	(0.07, 2.34)	2	3	0.57	(0.05, 2.22)
CBC-S	4	7	0.55	(0.15, 1.41)	4	7	0.58	(0.16, 1.45)
CBC	6	10	0.58	(0.21, 1.26)	6	10	0.58	(0.21, 1.26)
Both								
Sydney	3	6	0.50	(0.10, 1.46)	3	6	0.44	(0.08, 1.37)
CBC-S	8	15	0.52	(0.23, 1.03)	8	15	0.55	(0.24, 1.07)
CBC	11	21	0.52	(0.26, 0.93)	11	21	0.52	(0.26, 0.93)

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‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Malignant neoplasms								
Males								
Sydney	1634	1249	1.31	(1.25, 1.37)*	1487	1249	1.19	(1.13, 1.25)
CBC-S	3827	3466	1.10	(1.07, 1.14)	3966	3466	1.14	(1.11, 1.18)
CBC	5461	4715	1.16	(1.13, 1.19)	5461	4715	1.16	(1.13, 1.19)
Females								
Sydney	1463	1144	1.28	(1.21, 1.35)*	1331	1144	1.16	(1.10, 1.23)
CBC-S	3028	2728	1.11	(1.07, 1.15)	3138	2728	1.15	(1.11, 1.19)
CBC	4491	3873	1.16	(1.13, 1.19)	4491	3873	1.16	(1.13, 1.19)
Both								
Sydney	3097	2393	1.29	(1.25, 1.34)*	2818	2393	1.18	(1.13, 1.22)
CBC-S	6855	6194	1.11	(1.08, 1.13)	7104	6194	1.15	(1.12, 1.17)
CBC	9952	8588	1.16	(1.14, 1.18)	9952	8588	1.16	(1.14, 1.18)
Lip								
Males								
Sydney	6	3	2.28	(0.83, 4.97)	5	3	2.08	(0.71, 4.68)
CBC-S	14	7	1.90	(1.04, 3.19)	15	7	1.97	(1.09, 3.27)
CBC	20	10	2.00	(1.22, 3.09)	20	10	2.00	(1.22, 3.09)
Major salivary glands								
Males								
Sydney	4	2	1.81	(0.49, 4.62)	4	2	1.64	(0.40, 4.38)
CBC-S	5	6	0.81	(0.26, 1.90)	5	6	0.84	(0.28, 1.94)
CBC	9	8	1.08	(0.49, 2.05)	9	8	1.08	(0.49, 2.05)
Females								
Sydney	6	2	3.77	(1.38, 8.22)*	5	2	3.43	(1.18, 7.74)*
CBC-S	4	4	1.09	(0.29, 2.78)	4	4	1.13	(0.31, 2.84)
CBC	10	5	1.90	(0.91, 3.49)	10	5	1.90	(0.91, 3.49)
Both								
Sydney	10	4	2.63	(1.26, 4.83)*	9	4	2.39	(1.10, 4.52)*
CBC-S	9	10	0.92	(0.42, 1.74)	9	10	0.95	(0.44, 1.78)
CBC	19	14	1.39	(0.84, 2.18)	19	14	1.39	(0.84, 2.18)
Tongue, mouth, pharynx								
Males								
Sydney	42	29	1.43	(1.03, 1.94)*	38	29	1.31	(0.92, 1.79)
CBC-S	75	83	0.90	(0.71, 1.13)	78	83	0.93	(0.74, 1.17)
CBC	117	113	1.04	(0.86, 1.25)	117	113	1.04	(0.86, 1.25)
Females								
Sydney	14	11	1.22	(0.67, 2.05)	13	11	1.11	(0.59, 1.91)
CBC-S	28	27	1.03	(0.68, 1.48)	29	27	1.06	(0.71, 1.53)
CBC	42	39	1.08	(0.78, 1.47)	42	39	1.08	(0.78, 1.47)
Both								
Sydney	56	41	1.37	(1.04, 1.78)*	51	41	1.25	(0.93, 1.64)
CBC-S	103	111	0.93	(0.76, 1.13)	107	111	0.97	(0.79, 1.17)
CBC	159	151	1.05	(0.89, 1.23)	159	151	1.05	(0.89, 1.23)
Esophagus								
Males								
Sydney	45	30	1.52	(1.11, 2.04)*	41	30	1.39	(1.00, 1.88)
CBC-S	89	83	1.08	(0.86, 1.32)	92	83	1.12	(0.90, 1.37)
CBC	134	112	1.19	(1.00, 1.41)	134	112	1.19	(1.00, 1.41)
Females								
Sydney	21	14	1.53	(0.95, 2.34)	19	14	1.39	(0.84, 2.18)
CBC-S	27	31	0.86	(0.57, 1.26)	28	31	0.89	(0.59, 1.29)
CBC	48	45	1.07	(0.79, 1.41)	48	45	1.07	(0.79, 1.41)
Both								
Sydney	66	43	1.53	(1.18, 1.94)*	60	43	1.39	(1.06, 1.79)*
CBC-S	116	114	1.02	(0.84, 1.22)	120	114	1.05	(0.87, 1.26)
CBC	182	157	1.16	(1.00, 1.34)	182	157	1.16	(1.00, 1.34)

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Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Stomach								
Males								
Sydney	146	114	1.28	(1.08, 1.51)	133	114	1.16	(0.98, 1.38)
CBC-S	497	320	1.56	(1.42, 1.70)*	515	320	1.61	(1.48, 1.76)*
CBC	643	434	1.48	(1.37, 1.60)	643	434	1.48	(1.37, 1.60)
Females								
Sydney	108	72	1.50	(1.23, 1.81)	98	72	1.36	(1.11, 1.66)
CBC-S	255	165	1.55	(1.37, 1.75)	264	165	1.61	(1.42, 1.81)
CBC	363	237	1.53	(1.38, 1.70)	363	237	1.53	(1.38, 1.70)
Both								
Sydney	254	186	1.37	(1.20, 1.54)	231	186	1.24	(1.09, 1.41)
CBC-S	752	484	1.55	(1.44, 1.67)*	779	484	1.61	(1.50, 1.73)*
CBC	1006	670	1.50	(1.41, 1.60)	1006	670	1.50	(1.41, 1.60)
Colon, rectum, intestine not otherwise specified								
Males								
Sydney	226	173	1.31	(1.14, 1.49)*	206	173	1.19	(1.03, 1.36)
CBC-S	498	478	1.04	(0.95, 1.14)	516	478	1.08	(0.99, 1.18)
CBC	724	651	1.11	(1.03, 1.20)	724	651	1.11	(1.03, 1.20)
Females								
Sydney	259	198	1.31	(1.16, 1.48)*	236	198	1.19	(1.04, 1.35)
CBC-S	507	452	1.12	(1.03, 1.22)	525	452	1.16	(1.07, 1.27)
CBC	766	649	1.18	(1.10, 1.27)	766	649	1.18	(1.10, 1.27)
Both								
Sydney	485	371	1.31	(1.19, 1.43)*	441	371	1.19	(1.08, 1.31)
CBC-S	1005	930	1.08	(1.02, 1.15)	1041	930	1.12	(1.05, 1.19)
CBC	1490	1300	1.15	(1.09, 1.21)	1490	1300	1.15	(1.09, 1.21)
Colon and rectum (years 1969-1994)								
Males								
Sydney	127	100	1.27	(1.06, 1.51)*	116	100	1.16	(0.96, 1.39)
CBC-S	245	269	0.91	(0.80, 1.03)	254	269	0.94	(0.83, 1.07)
CBC	372	369	1.01	(0.91, 1.12)	372	369	1.01	(0.91, 1.12)
Females								
Sydney	141	113	1.25	(1.05, 1.47)*	128	113	1.13	(0.95, 1.35)
CBC-S	254	254	1.00	(0.88, 1.13)	263	254	1.04	(0.91, 1.17)
CBC	395	367	1.08	(0.97, 1.19)	395	367	1.08	(0.97, 1.19)
Both								
Sydney	268	213	1.26	(1.11, 1.42)*	244	213	1.14	(1.01, 1.30)*
CBC-S	499	523	0.95	(0.87, 1.04)	517	523	0.99	(0.90, 1.08)
CBC	767	736	1.04	(0.97, 1.12)	767	736	1.04	(0.97, 1.12)
Colon (years 1969-1994)								
Males								
Sydney	98	70	1.40	(1.14, 1.71)*	89	70	1.28	(1.03, 1.57)*
CBC-S	170	188	0.90	(0.77, 1.05)	176	188	0.94	(0.80, 1.08)
CBC	268	258	1.04	(0.92, 1.17)	268	258	1.04	(0.92, 1.17)
Females								
Sydney	116	88	1.31	(1.09, 1.58)*	106	88	1.20	(0.98, 1.45)
CBC-S	210	198	1.06	(0.92, 1.21)	218	198	1.10	(0.96, 1.25)
CBC	326	287	1.14	(1.02, 1.27)	326	287	1.14	(1.02, 1.27)
Both								
Sydney	214	158	1.35	(1.18, 1.55)*	195	158	1.23	(1.06, 1.42)*
CBC-S	380	387	0.98	(0.89, 1.09)	394	387	1.02	(0.92, 1.12)
CBC	594	545	1.09	(1.00, 1.18)	594	545	1.09	(1.00, 1.18)

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‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
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Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Rectum, rectosigmoid junction, and anus								
Males								
Sydney	44	51	0.87	(0.63, 1.17)	40	51	0.79	(0.56, 1.08)
CBC-S	132	141	0.94	(0.78, 1.11)	137	141	0.97	(0.82, 1.15)
CBC	176	191	0.92	(0.79, 1.07)	176	191	0.92	(0.79, 1.07)
Females								
Sydney	42	40	1.05	(0.75, 1.41)	38	40	0.95	(0.67, 1.30)
CBC-S	77	92	0.84	(0.66, 1.05)	80	92	0.87	(0.69, 1.08)
CBC	119	132	0.90	(0.75, 1.08)	119	132	0.90	(0.75, 1.08)
Both								
Sydney	86	91	0.95	(0.76, 1.17)	78	91	0.86	(0.68, 1.07)
CBC-S	209	233	0.90	(0.78, 1.03)	217	233	0.93	(0.81, 1.06)
CBC	295	323	0.91	(0.81, 1.02)	295	323	0.91	(0.81, 1.02)
Liver and intrahepatic bile ducts								
Males								
Sydney	6	11	0.53	(0.19, 1.15)	5	11	0.48	(0.16, 1.08)
CBC-S	18	32	0.56	(0.33, 0.88)	19	32	0.58	(0.35, 0.91)
CBC	24	44	0.55	(0.35, 0.82)	24	44	0.55	(0.35, 0.82)
Females								
Sydney	1	8	0.13	(0.00, 0.70)	1	8	0.12	(0.00, 0.68)
CBC-S	10	19	0.53	(0.25, 0.98)	10	19	0.55	(0.27, 1.00)
CBC	11	27	0.41	(0.21, 0.74)	11	27	0.41	(0.21, 0.74)
Both								
Sydney	7	19	0.36	(0.15, 0.75)	6	19	0.33	(0.13, 0.70)
CBC-S	28	51	0.55	(0.36, 0.79)	29	51	0.57	(0.38, 0.82)
CBC	35	70	0.50	(0.35, 0.69)	35	70	0.50	(0.35, 0.69)
Pancreas								
Males								
Sydney	99	67	1.47	(1.19, 1.79)	90	67	1.33	(1.07, 1.64)
CBC-S	233	187	1.24	(1.09, 1.41)	241	187	1.29	(1.13, 1.46)
CBC	332	255	1.30	(1.17, 1.45)	332	255	1.30	(1.17, 1.45)
Females								
Sydney	80	60	1.33	(1.05, 1.65)	73	60	1.21	(0.95, 1.52)
CBC-S	177	139	1.27	(1.09, 1.48)	183	139	1.32	(1.14, 1.53)
CBC	257	199	1.29	(1.14, 1.46)	257	199	1.29	(1.14, 1.46)
Both								
Sydney	179	128	1.40	(1.20, 1.62)	163	128	1.28	(1.09, 1.49)
CBC-S	410	326	1.26	(1.14, 1.38)	425	326	1.30	(1.18, 1.43)
CBC	589	454	1.30	(1.19, 1.41)	589	454	1.30	(1.19, 1.41)
Larynx								
Males								
Sydney	25	17	1.44	(0.93, 2.13)	23	17	1.31	(0.83, 1.98)
CBC-S	54	49	1.11	(0.83, 1.45)	56	49	1.15	(0.87, 1.49)
CBC	79	66	1.20	(0.95, 1.49)	79	66	1.20	(0.95, 1.49)
Females								
Sydney	3	3	0.91	(0.18, 2.66)	3	3	0.83	(0.15, 2.54)
CBC-S	10	8	1.25	(0.60, 2.29)	10	8	1.29	(0.63, 2.35)
CBC	13	11	1.15	(0.61, 1.96)	13	11	1.15	(0.61, 1.96)
Both								
Sydney	28	21	1.36	(0.90, 1.96)	25	21	1.24	(0.80, 1.82)
CBC-S	64	57	1.13	(0.87, 1.44)	66	57	1.17	(0.91, 1.49)
CBC	92	77	1.19	(0.96, 1.46)	92	77	1.19	(0.96, 1.46)

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Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Lung and bronchus (years 1958-1994)								
Males								
Sydney	433	320	1.35	(1.23, 1.49)*	394	320	1.23	(1.11, 1.36)
CBC-S	1015	888	1.14	(1.07, 1.22)	1052	888	1.18	(1.11, 1.26)
CBC	1448	1208	1.20	(1.14, 1.26)	1448	1208	1.20	(1.14, 1.26)
Females								
Sydney	148	110	1.34	(1.13, 1.57)	135	110	1.22	(1.02, 1.44)
CBC-S	325	277	1.17	(1.05, 1.31)	337	277	1.22	(1.09, 1.35)
CBC	473	387	1.22	(1.11, 1.34)	473	387	1.22	(1.11, 1.34)
Both								
Sydney	581	431	1.35	(1.24, 1.46)*	529	431	1.23	(1.12, 1.34)
CBC-S	1340	1165	1.15	(1.09, 1.21)	1389	1165	1.19	(1.13, 1.26)
CBC	1921	1596	1.20	(1.15, 1.26)	1921	1596	1.20	(1.15, 1.26)
Bone and articular cartilage								
Males								
Sydney	8	6	1.34	(0.58, 2.63)	7	6	1.22	(0.50, 2.47)
CBC-S	22	17	1.29	(0.81, 1.95)	23	17	1.33	(0.84, 2.01)
CBC	30	23	1.30	(0.88, 1.86)	30	23	1.30	(0.88, 1.86)
Females								
Sydney	6	4	1.52	(0.56, 3.31)	5	4	1.38	(0.47, 3.12)
CBC-S	12	10	1.26	(0.65, 2.20)	12	10	1.30	(0.68, 2.26)
CBC	18	13	1.34	(0.79, 2.11)	18	13	1.34	(0.79, 2.11)
Both								
Sydney	14	10	1.41	(0.77, 2.37)	13	10	1.28	(0.68, 2.21)
CBC-S	34	27	1.28	(0.88, 1.78)	35	27	1.32	(0.92, 1.84)
CBC	48	37	1.31	(0.97, 1.74)	48	37	1.31	(0.97, 1.74)
Connective and other soft tissue (years 1958-1994)								
Males								
Sydney	1	4	0.24	(0.00, 1.35)	1	4	0.22	(0.00, 1.31)
CBC-S	20	12	1.68	(1.03, 2.60)*	21	12	1.75	(1.08, 2.68)*
CBC	21	16	1.31	(0.81, 2.01)	21	16	1.31	(0.81, 2.01)
Females								
Sydney	5	4	1.20	(0.39, 2.81)	5	4	1.10	(0.33, 2.66)
CBC-S	12	10	1.16	(0.60, 2.03)	12	10	1.20	(0.63, 2.08)
CBC	17	15	1.17	(0.68, 1.88)	17	15	1.17	(0.68, 1.88)
Both								
Sydney	6	8	0.73	(0.26, 1.58)	5	8	0.66	(0.23, 1.49)
CBC-S	32	22	1.44	(0.98, 2.03)	33	22	1.49	(1.03, 2.09)*
CBC	38	30	1.25	(0.88, 1.71)	38	30	1.25	(0.88, 1.71)
Melanoma of skin								
Males								
Sydney	8	9	0.87	(0.38, 1.72)	7	9	0.80	(0.33, 1.62)
CBC-S	17	27	0.63	(0.37, 1.01)	18	27	0.65	(0.38, 1.04)
CBC	25	36	0.69	(0.45, 1.02)	25	36	0.69	(0.45, 1.02)
Females								
Sydney	13	8	1.60	(0.85, 2.74)	12	8	1.46	(0.75, 2.56)
CBC-S	16	21	0.77	(0.44, 1.25)	17	21	0.80	(0.46, 1.29)
CBC	29	29	1.01	(0.67, 1.44)	29	29	1.01	(0.67, 1.44)
Both								
Sydney	21	17	1.22	(0.75, 1.86)	19	17	1.11	(0.67, 1.73)
CBC-S	33	48	0.69	(0.48, 0.97)	34	48	0.72	(0.50, 1.00)
CBC	54	65	0.83	(0.62, 1.09)	54	65	0.83	(0.62, 1.09)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Other neoplasm of skin								
Males								
Sydney	8	6	1.33	(0.57, 2.63)	7	6	1.21	(0.50, 2.47)
CBC-S	17	17	1.03	(0.60, 1.65)	18	17	1.06	(0.63, 1.69)
CBC	25	23	1.11	(0.72, 1.64)	25	23	1.11	(0.72, 1.64)
Females								
Sydney	9	4	2.22	(1.01, 4.22)	8	4	2.02	(0.88, 3.96)
CBC-S	10	9	1.14	(0.55, 2.09)	10	9	1.18	(0.57, 2.15)
CBC	19	13	1.48	(0.89, 2.31)	19	13	1.48	(0.89, 2.31)
Both								
Sydney	17	10	1.69	(0.99, 2.71)	15	10	1.54	(0.87, 2.52)
CBC-S	27	25	1.07	(0.70, 1.55)	28	25	1.10	(0.73, 1.60)
CBC	44	35	1.24	(0.90, 1.67)	44	35	1.24	(0.90, 1.67)
Breast (female)								
Sydney	280	225	1.25	(1.10, 1.40)*	255	225	1.13	(1.00, 1.28)
CBC-S	571	555	1.03	(0.95, 1.12)	592	555	1.07	(0.98, 1.16)
CBC	851	780	1.09	(1.02, 1.17)	851	780	1.09	(1.02, 1.17)
Cervix uteri								
Sydney	74	41	1.79	(1.41, 2.25)	67	41	1.63	(1.27, 2.07)
CBC-S	189	103	1.83	(1.58, 2.11)	196	103	1.89	(1.64, 2.18)
CBC	263	145	1.82	(1.61, 2.05)	263	145	1.82	(1.61, 2.05)
Body of uterus								
Sydney	21	20	1.03	(0.64, 1.58)	19	20	0.94	(0.57, 1.47)
CBC-S	35	48	0.73	(0.51, 1.02)	36	48	0.76	(0.53, 1.05)
CBC	56	68	0.82	(0.62, 1.07)	56	68	0.82	(0.62, 1.07)
Ovary and other uterine adnexa								
Sydney	57	65	0.87	(0.66, 1.13)	52	65	0.79	(0.59, 1.04)
CBC-S	155	161	0.96	(0.82, 1.12)	161	161	1.00	(0.85, 1.16)
CBC	212	227	0.94	(0.81, 1.07)	212	227	0.94	(0.81, 1.07)
Prostate								
Sydney	155	132	1.17	(1.00, 1.37)*	141	132	1.07	(0.90, 1.26)
CBC-S	345	351	0.98	(0.88, 1.09)	358	351	1.02	(0.91, 1.13)
CBC	500	483	1.03	(0.95, 1.13)	500	483	1.03	(0.95, 1.13)
Testis								
Sydney	4	3	1.18	(0.32, 3.02)	4	3	1.07	(0.26, 2.86)
CBC-S	15	10	1.49	(0.83, 2.45)	16	10	1.54	(0.87, 2.52)
CBC	19	13	1.41	(0.85, 2.20)	19	13	1.41	(0.85, 2.20)
Bladder (year 1958-1994)								
Males								
Sydney	37	38	0.96	(0.68, 1.33)	34	38	0.88	(0.61, 1.23)
CBC-S	116	103	1.13	(0.93, 1.35)	120	103	1.17	(0.97, 1.40)
CBC	153	141	1.08	(0.92, 1.27)	153	141	1.08	(0.92, 1.27)
Females								
Sydney	25	18	1.39	(0.90, 2.05)	23	18	1.27	(0.80, 1.90)
CBC-S	39	39	1.01	(0.72, 1.38)	40	39	1.05	(0.75, 1.43)
CBC	64	57	1.13	(0.87, 1.45)	64	57	1.13	(0.87, 1.45)
Both								
Sydney	62	56	1.10	(0.84, 1.41)	56	56	1.00	(0.76, 1.30)
CBC-S	155	141	1.10	(0.93, 1.28)	161	141	1.14	(0.97, 1.33)
CBC	217	198	1.10	(0.96, 1.25)	217	198	1.10	(0.96, 1.25)

†: An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p<0.05$) than the SMR of CBC-S.
‡: An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p<0.05$) than the SMR of Sydney.
§: (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Kidney, renal pelvis and ureter								
Males								
Sydney	28	29	0.97	(0.65, 1.41)	25	29	0.89	(0.58, 1.30)
CBC-S	73	81	0.90	(0.71, 1.14)	76	81	0.94	(0.74, 1.17)
CBC	101	109	0.92	(0.75, 1.12)	101	109	0.92	(0.75, 1.12)
Females								
Sydney	22	19	1.16	(0.73, 1.76)	20	19	1.06	(0.65, 1.64)
CBC-S	52	45	1.16	(0.87, 1.52)	54	45	1.20	(0.90, 1.57)
CBC	74	64	1.16	(0.91, 1.46)	74	64	1.16	(0.91, 1.46)
Both								
Sydney	50	48	1.05	(0.78, 1.38)	45	48	0.95	(0.70, 1.28)
CBC-S	125	126	1.00	(0.83, 1.19)	130	126	1.03	(0.86, 1.23)
CBC	175	173	1.01	(0.87, 1.17)	175	173	1.01	(0.87, 1.17)
Brain (years 1958-1994)								
Males								
Sydney	23	24	0.95	(0.60, 1.42)	21	24	0.86	(0.53, 1.32)
CBC-S	50	71	0.70	(0.52, 0.93)	52	71	0.73	(0.55, 0.96)
CBC	73	95	0.77	(0.60, 0.96)	73	95	0.77	(0.60, 0.96)
Females								
Sydney	18	20	0.89	(0.53, 1.41)	16	20	0.81	(0.47, 1.31)
CBC-S	36	52	0.69	(0.48, 0.95)	37	52	0.71	(0.50, 0.98)
CBC	54	72	0.75	(0.56, 0.97)	54	72	0.75	(0.56, 0.97)
Both								
Sydney	41	44	0.92	(0.66, 1.25)	37	44	0.84	(0.59, 1.16)
CBC-S	86	123	0.70	(0.56, 0.86)	89	123	0.72	(0.58, 0.89)
CBC	127	168	0.76	(0.63, 0.90)	127	168	0.76	(0.63, 0.90)
Thyroid, other endocrine glands and related structures								
Males								
Sydney	5	4	1.16	(0.37, 2.70)	5	4	1.05	(0.32, 2.55)
CBC-S	11	12	0.90	(0.45, 1.60)	11	12	0.93	(0.47, 1.65)
CBC	16	17	0.96	(0.55, 1.57)	16	17	0.96	(0.55, 1.57)
Females								
Sydney	7	7	0.98	(0.39, 2.02)	6	7	0.89	(0.34, 1.90)
CBC-S	14	17	0.83	(0.45, 1.39)	15	17	0.86	(0.48, 1.43)
CBC	21	24	0.87	(0.54, 1.34)	21	24	0.87	(0.54, 1.34)
Both								
Sydney	12	11	1.05	(0.54, 1.83)	11	11	0.95	(0.47, 1.71)
CBC-S	25	29	0.86	(0.55, 1.27)	26	29	0.89	(0.58, 1.30)
CBC	37	41	0.91	(0.64, 1.25)	37	41	0.91	(0.64, 1.25)
Lymphosarcoma, reticulosarcoma, other malignant neoplasms of lymphoid and histiocytic tissue (mainly non-Hodgkin's lymphoma)								
Males								
Sydney	38	33	1.14	(0.81, 1.57)	35	33	1.04	(0.72, 1.45)
CBC-S	72	94	0.77	(0.60, 0.97)	75	94	0.80	(0.63, 1.00)
CBC	110	127	0.87	(0.71, 1.05)	110	127	0.87	(0.71, 1.05)
Females								
Sydney	27	32	0.85	(0.56, 1.23)	25	32	0.77	(0.50, 1.14)
CBC-S	58	76	0.76	(0.58, 0.99)	60	76	0.79	(0.60, 1.02)
CBC	85	108	0.79	(0.63, 0.97)	85	108	0.79	(0.63, 0.97)
Both								
Sydney	65	65	1.00	(0.77, 1.27)	59	65	0.91	(0.69, 1.17)
CBC-S	130	170	0.77	(0.64, 0.91)	135	170	0.79	(0.67, 0.94)
CBC	195	235	0.83	(0.72, 0.96)	195	235	0.83	(0.72, 0.96)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p<0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p<0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Figure 1

River R
Lingan Road
South Bar
Sydney
Sydney Harbour
South Arm
Point Edward
Northwest Arm

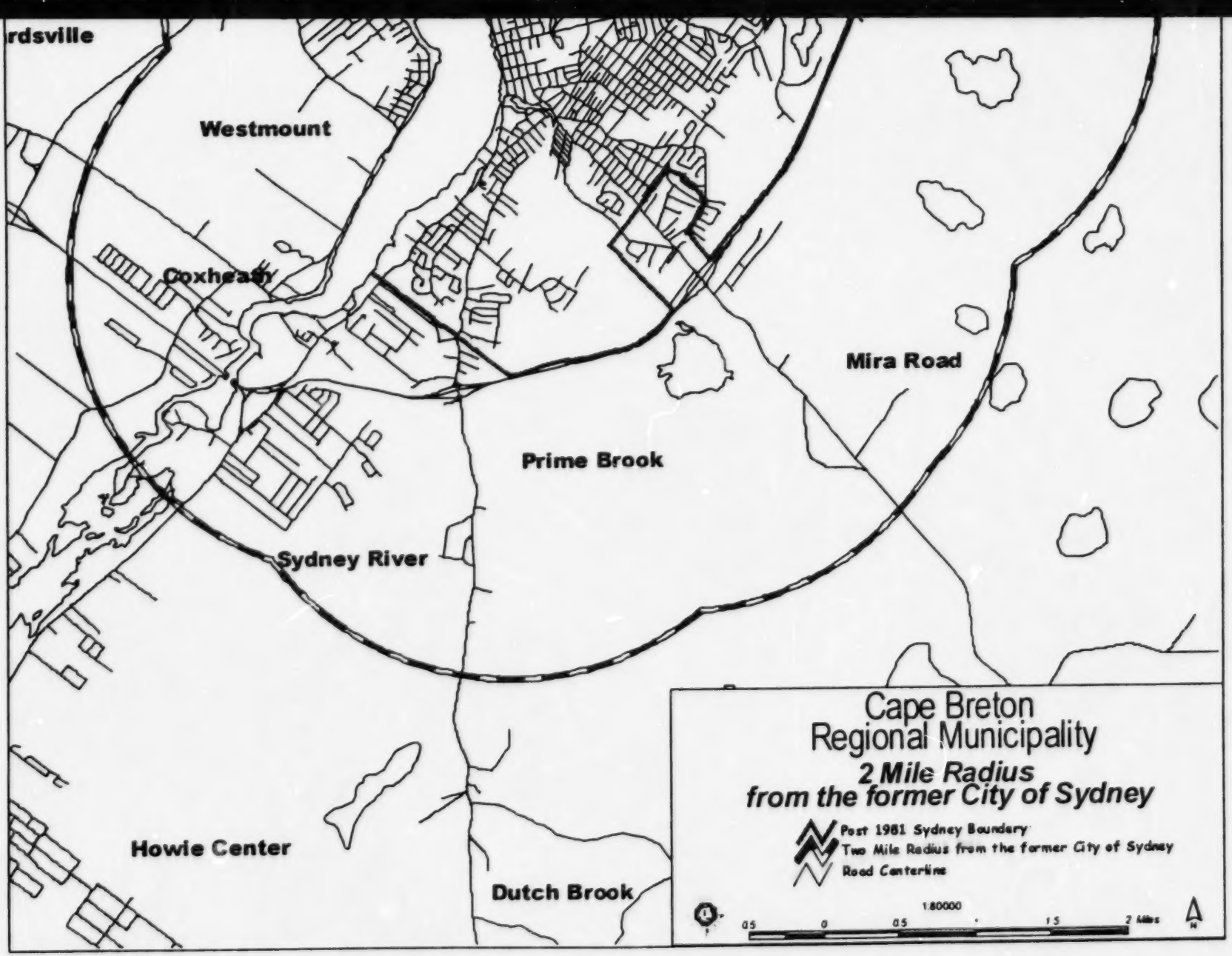
rdsville
Westmount
Coxheath
Mira Road
Prime Brook
Sydney River
Howie Center
Dutch Brook
Cape Breton
Regional Municipality
2 Mile Radius
from the former City of Sydney
Post 1981 Sydney Boundary
Two Mile Radius from the former City of Sydney
Road Centerline
1:80000
0.5
0
0.5
1.5
2 Miles
N

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Hodgkin's disease								
Males								
Sydney	9	9	1.01	(0.46, 1.91)	8	9	0.91	(0.40, 1.79)
CBC-S	22	26	0.85	(0.53, 1.29)	23	26	0.88	(0.56, 1.32)
CBC	31	35	0.89	(0.60, 1.26)	31	35	0.89	(0.60, 1.26)
Females								
Sydney	3	6	0.51	(0.10, 1.49)	3	6	0.46	(0.08, 1.42)
CBC-S	8	15	0.54	(0.23, 1.05)	8	15	0.55	(0.24, 1.08)
CBC	11	21	0.53	(0.26, 0.94)	11	21	0.53	(0.26, 0.94)
Both								
Sydney	12	15	0.81	(0.42, 1.41)	11	15	0.74	(0.37, 1.32)
CBC-S	30	41	0.73	(0.50, 1.05)	31	41	0.76	(0.52, 1.08)
CBC	42	56	0.75	(0.54, 1.02)	42	56	0.75	(0.54, 1.02)
Multiple myeloma								
Males								
Sydney	30	17	1.74	(1.17, 2.48)*	27	17	1.58	(1.05, 2.30)*
CBC-S	36	47	0.76	(0.53, 1.05)	37	47	0.79	(0.56, 1.09)
CBC	66	65	1.02	(0.79, 1.30)	66	65	1.02	(0.79, 1.30)
Females								
Sydney	27	16	1.64	(1.08, 2.39)*	25	16	1.50	(0.96, 2.21)
CBC-S	34	38	0.89	(0.61, 1.24)	35	38	0.92	(0.64, 1.27)
CBC	61	55	1.11	(0.85, 1.43)	61	55	1.11	(0.85, 1.43)
Both								
Sydney	57	34	1.69	(1.28, 2.19)*	52	34	1.54	(1.15, 2.02)*
CBC-S	70	86	0.82	(0.64, 1.03)	73	86	0.85	(0.66, 1.06)
CBC	127	119	1.06	(0.89, 1.27)	127	119	1.06	(0.89, 1.27)
Leukemias								
Males								
Sydney	56	44	1.27	(0.96, 1.65)	51	44	1.16	(0.86, 1.52)
CBC-S	124	122	1.01	(0.84, 1.21)	128	122	1.05	(0.88, 1.25)
CBC	180	166	1.08	(0.93, 1.25)	180	166	1.08	(0.93, 1.25)
Females								
Sydney	45	36	1.23	(0.90, 1.65)	41	36	1.12	(0.81, 1.52)
CBC-S	99	86	1.15	(0.93, 1.40)	103	86	1.19	(0.97, 1.44)
CBC	144	123	1.17	(0.99, 1.38)	144	123	1.17	(0.99, 1.38)
Both								
Sydney	101	80	1.26	(1.02, 1.53)	92	80	1.14	(0.92, 1.40)
CBC-S	223	209	1.07	(0.93, 1.22)	231	209	1.11	(0.97, 1.26)
CBC	324	289	1.12	(1.00, 1.25)	324	289	1.12	(1.00, 1.25)
Acute lymphoid leukemia (years 1969-1994)								
Males								
Sydney	1	2	0.65	(0.01, 3.62)	1	2	0.59	(0.00, 3.52)
CBC-S	5	5	1.11	(0.36, 2.59)	5	5	1.15	(0.38, 2.64)
CBC	6	6	0.99	(0.36, 2.16)	6	6	0.99	(0.36, 2.16)
Females								
Sydney	3	1	2.16	(0.43, 6.30)	3	1	1.96	(0.35, 6.00)
CBC-S	6	3	1.72	(0.63, 3.75)	6	3	1.79	(0.67, 3.84)
CBC	9	5	1.85	(0.84, 3.51)	9	5	1.85	(0.84, 3.51)
Both								
Sydney	4	3	1.37	(0.37, 3.50)	4	3	1.24	(0.31, 3.32)
CBC-S	11	8	1.38	(0.69, 2.46)	11	8	1.43	(0.72, 2.53)
CBC	15	11	1.37	(0.77, 2.27)	15	11	1.37	(0.77, 2.27)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Chronic lymphoid leukemia (years 1969-1994)								
Males								
Sydney	4	7	0.59	(0.16, 1.52)	4	7	0.54	(0.13, 1.44)
CBC-S	14	18	0.79	(0.43, 1.33)	15	18	0.82	(0.45, 1.36)
CBC	18	24	0.74	(0.44, 1.16)	18	24	0.74	(0.44, 1.16)
Females								
Sydney	4	5	0.84	(0.23, 2.16)	4	5	0.77	(0.19, 2.04)
CBC-S	9	10	0.88	(0.40, 1.68)	9	10	0.91	(0.42, 1.72)
CBC	13	15	0.87	(0.46, 1.49)	13	15	0.87	(0.46, 1.49)
Both								
Sydney	8	11	0.70	(0.30, 1.37)	7	11	0.63	(0.26, 1.29)
CBC-S	23	28	0.82	(0.52, 1.24)	24	28	0.85	(0.55, 1.27)
CBC	31	39	0.79	(0.53, 1.12)	31	39	0.79	(0.53, 1.12)
Myeloid leukemias (years 1969-1994)								
Males								
Sydney	18	11	1.71	(1.01, 2.70)*	16	11	1.55	(0.89, 2.51)
CBC-S	21	30	0.71	(0.44, 1.08)	22	30	0.73	(0.46, 1.11)
CBC	39	40	0.97	(0.69, 1.32)	39	40	0.97	(0.69, 1.32)
Females								
Sydney	8	10	0.80	(0.35, 1.58)	7	10	0.73	(0.30, 1.48)
CBC-S	19	24	0.78	(0.47, 1.21)	20	24	0.81	(0.49, 1.25)
CBC	27	34	0.78	(0.52, 1.14)	27	34	0.78	(0.52, 1.14)
Both								
Sydney	26	21	1.27	(0.83, 1.86)	24	21	1.15	(0.74, 1.72)
CBC-S	40	54	0.74	(0.53, 1.01)	41	54	0.76	(0.55, 1.04)
CBC	66	75	0.88	(0.68, 1.12)	66	75	0.88	(0.68, 1.12)
Acute myeloid leukemia (years 1969-1994)								
Males								
Sydney	8	6	1.26	(0.54, 2.49)	7	6	1.15	(0.47, 2.33)
CBC-S	14	18	0.78	(0.43, 1.31)	15	18	0.81	(0.45, 1.34)
CBC	22	24	0.91	(0.57, 1.37)	22	24	0.91	(0.57, 1.37)
Females								
Sydney	5	6	0.81	(0.26, 1.89)	5	6	0.74	(0.22, 1.79)
CBC-S	13	15	0.85	(0.45, 1.46)	13	15	0.88	(0.48, 1.50)
CBC	18	21	0.84	(0.50, 1.33)	18	21	0.84	(0.50, 1.33)
Both								
Sydney	13	12	1.04	(0.55, 1.78)	12	12	0.95	(0.49, 1.66)
CBC-S	27	33	0.81	(0.54, 1.18)	28	33	0.84	(0.56, 1.22)
CBC	40	46	0.88	(0.63, 1.19)	40	46	0.88	(0.63, 1.19)
Chronic myeloid leukemia (years 1969-1994)								
Males								
Sydney	5	3	1.58	(0.51, 3.68)	5	3	1.43	(0.43, 3.48)
CBC-S	6	9	0.66	(0.24, 1.44)	6	9	0.69	(0.26, 1.47)
CBC	11	12	0.90	(0.45, 1.61)	11	12	0.90	(0.45, 1.61)
Females								
Sydney	3	3	1.04	(0.21, 3.03)	3	3	0.94	(0.17, 2.89)
CBC-S	6	7	0.85	(0.31, 1.84)	6	7	0.88	(0.33, 1.89)
CBC	9	10	0.90	(0.41, 1.71)	9	10	0.90	(0.41, 1.71)
Both								
Sydney	8	6	1.32	(0.57, 2.60)	7	6	1.20	(0.49, 2.44)
CBC-S	12	16	0.74	(0.38, 1.30)	12	16	0.77	(0.40, 1.33)
CBC	20	22	0.90	(0.55, 1.39)	20	22	0.90	(0.55, 1.39)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Ill-defined and secondary site								
Males								
Sydney	122	57	2.13	(1.77, 2.54)*	111	57	1.93	(1.59, 2.33)*
CBC-S	226	160	1.41	(1.24, 1.61)	234	160	1.47	(1.28, 1.67)
CBC	348	217	1.60	(1.44, 1.78)	348	217	1.60	(1.44, 1.78)
Females								
Sydney	112	60	1.87	(1.54, 2.26)*	102	60	1.71	(1.39, 2.07)*
CBC-S	181	138	1.31	(1.13, 1.52)	188	138	1.36	(1.17, 1.57)
CBC	293	198	1.48	(1.32, 1.66)	293	198	1.48	(1.32, 1.66)
Both								
Sydney	234	117	2.00	(1.75, 2.27)*	213	117	1.82	(1.58, 2.08)*
CBC-S	407	298	1.37	(1.24, 1.51)	422	298	1.42	(1.28, 1.56)
CBC	641	415	1.54	(1.43, 1.67)	641	415	1.54	(1.43, 1.67)
Benign neoplasms								
Males								
Sydney	14	12	1.18	(0.64, 1.97)	12	12	1.04	(0.55, 1.81)
CBC-S	57	33	1.73	(1.31, 2.24)	60	33	1.82	(1.39, 2.34)*
CBC	71	45	1.58	(1.23, 1.99)	71	45	1.58	(1.23, 1.99)
Females								
Sydney	22	16	1.37	(0.86, 2.07)	20	16	1.21	(0.73, 1.88)
CBC-S	62	38	1.63	(1.25, 2.09)	65	38	1.72	(1.33, 2.19)
CBC	84	54	1.55	(1.24, 1.92)	84	54	1.55	(1.24, 1.92)
Both								
Sydney	36	28	1.29	(0.90, 1.78)	32	28	1.14	(0.78, 1.61)
CBC-S	119	71	1.68	(1.39, 2.01)	125	71	1.77	(1.47, 2.10)*
CBC	155	99	1.57	(1.33, 1.83)	155	99	1.57	(1.33, 1.83)
Endocrine, nutritional, and metabolic diseases and immunity disorders								
Males								
Sydney	221	107	2.06	(1.80, 2.35)*	196	107	1.83	(1.58, 2.10)*
CBC-S	361	293	1.23	(1.11, 1.36)	380	293	1.30	(1.17, 1.43)
CBC	582	400	1.45	(1.34, 1.58)	582	400	1.45	(1.34, 1.58)
Females								
Sydney	241	156	1.55	(1.36, 1.75)	214	156	1.37	(1.19, 1.57)
CBC-S	504	346	1.46	(1.33, 1.59)	531	346	1.54	(1.41, 1.67)
CBC	745	502	1.48	(1.38, 1.60)	745	502	1.48	(1.38, 1.60)
Both								
Sydney	462	263	1.76	(1.60, 1.92)*	410	263	1.56	(1.41, 1.72)
CBC-S	865	639	1.35	(1.26, 1.45)	911	639	1.43	(1.34, 1.52)
CBC	1327	902	1.47	(1.39, 1.55)	1327	902	1.47	(1.39, 1.55)
Thyroid gland								
Males								
Sydney	3	2	1.78	(0.36, 5.21)	3	2	1.58	(0.27, 4.91)
CBC-S	7	5	1.51	(0.61, 3.12)	7	5	1.59	(0.66, 3.23)
CBC	10	6	1.59	(0.76, 2.92)	10	6	1.59	(0.76, 2.92)
Females								
Sydney	4	6	0.62	(0.17, 1.59)	4	6	0.55	(0.13, 1.49)
CBC-S	18	15	1.23	(0.73, 1.94)	19	15	1.29	(0.78, 2.02)
CBC	22	21	1.04	(0.65, 1.58)	22	21	1.04	(0.65, 1.58)
Both								
Sydney	7	8	0.86	(0.34, 1.77)	6	8	0.76	(0.28, 1.64)
CBC-S	25	19	1.30	(0.84, 1.91)	26	19	1.37	(0.89, 2.00)
CBC	32	27	1.17	(0.80, 1.65)	32	27	1.17	(0.80, 1.65)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Diabetes mellitus								
Males								
Sydney	194	87	2.22	(1.92, 2.56)*	172	87	1.97	(1.68, 2.29)*
CBC-S	301	239	1.26	(1.12, 1.41)	317	239	1.33	(1.19, 1.48)
CBC	495	326	1.52	(1.39, 1.66)	495	326	1.52	(1.39, 1.66)
Females								
Sydney	204	127	1.61	(1.39, 1.84)	181	127	1.42	(1.22, 1.65)
CBC-S	442	282	1.57	(1.43, 1.72)	466	282	1.65	(1.51, 1.81)*
CBC	646	409	1.58	(1.46, 1.71)	646	409	1.58	(1.46, 1.71)
Both								
Sydney	398	214	1.86	(1.68, 2.05)*	353	214	1.65	(1.48, 1.83)
CBC-S	743	521	1.43	(1.33, 1.53)	783	521	1.50	(1.40, 1.61)
CBC	1141	735	1.55	(1.46, 1.64)	1141	735	1.55	(1.46, 1.64)
Nutritional deficiencies (years 1953-1994)								
Males								
Sydney	7	3	2.33	(0.93, 4.80)	6	3	2.06	(0.77, 4.44)
CBC-S	7	8	0.92	(0.37, 1.89)	7	8	0.97	(0.40, 1.95)
CBC	14	11	1.32	(0.72, 2.21)	14	11	1.32	(0.72, 2.21)
Females								
Sydney	10	5	2.18	(1.04, 4.00)*	9	5	1.93	(0.87, 3.68)
CBC-S	7	9	0.79	(0.31, 1.62)	7	9	0.83	(0.34, 1.67)
CBC	17	14	1.26	(0.73, 2.01)	17	14	1.26	(0.73, 2.01)
Both								
Sydney	17	8	2.24	(1.30, 3.58)*	15	8	1.98	(1.11, 3.27)*
CBC-S	14	17	0.85	(0.46, 1.42)	15	17	0.89	(0.50, 1.48)
CBC	31	24	1.28	(0.87, 1.82)	31	24	1.28	(0.87, 1.82)
Other metabolic disorders								
Males								
Sydney	15	13	1.12	(0.63, 1.85)	13	13	0.99	(0.53, 1.69)
CBC-S	40	37	1.08	(0.77, 1.47)	42	37	1.14	(0.82, 1.54)
CBC	55	50	1.09	(0.82, 1.42)	55	50	1.09	(0.82, 1.42)
Females								
Sydney	19	16	1.19	(0.71, 1.85)	17	16	1.05	(0.61, 1.69)
CBC-S	25	36	0.70	(0.45, 1.03)	26	36	0.74	(0.48, 1.08)
CBC	44	52	0.85	(0.62, 1.14)	44	52	0.85	(0.62, 1.14)
Both								
Sydney	34	29	1.16	(0.80, 1.62)	30	29	1.03	(0.69, 1.46)
CBC-S	65	73	0.89	(0.69, 1.14)	68	73	0.94	(0.73, 1.19)
CBC	99	102	0.97	(0.79, 1.18)	99	102	0.97	(0.79, 1.18)
Blood and blood-forming organs								
Males								
Sydney	15	15	1.00	(0.56, 1.66)	13	15	0.89	(0.48, 1.51)
CBC-S	51	40	1.27	(0.95, 1.67)	54	40	1.34	(1.00, 1.75)
CBC	66	55	1.20	(0.93, 1.52)	66	55	1.20	(0.93, 1.52)
Females								
Sydney	28	20	1.43	(0.95, 2.07)	25	20	1.27	(0.82, 1.88)
CBC-S	51	42	1.21	(0.90, 1.59)	54	42	1.27	(0.96, 1.66)
CBC	79	62	1.28	(1.01, 1.59)	79	62	1.28	(1.01, 1.59)
Both								
Sydney	43	34	1.25	(0.90, 1.68)	38	34	1.11	(0.78, 1.52)
CBC-S	102	82	1.24	(1.01, 1.50)	107	82	1.31	(1.07, 1.58)
CBC	145	117	1.24	(1.05, 1.46)	145	117	1.24	(1.05, 1.46)

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‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Mental disorders								
Males								
Sydney	73	40	1.83	(1.44, 2.30)*	65	40	1.62	(1.25, 2.07)*
CBC-S	107	109	0.99	(0.81, 1.19)	113	109	1.04	(0.86, 1.25)
CBC	180	148	1.21	(1.04, 1.40)	180	148	1.21	(1.04, 1.40)
Females								
Sydney	67	43	1.55	(1.20, 1.97)*	59	43	1.37	(1.05, 1.77)*
CBC-S	59	88	0.67	(0.51, 0.86)	62	88	0.70	(0.54, 0.90)
CBC	126	132	0.96	(0.80, 1.14)	126	132	0.96	(0.80, 1.14)
Both								
Sydney	140	83	1.68	(1.42, 1.99)*	124	83	1.49	(1.24, 1.78)*
CBC-S	166	197	0.84	(0.72, 0.98)	175	197	0.89	(0.76, 1.03)
CBC	306	280	1.09	(0.97, 1.22)	306	280	1.09	(0.97, 1.22)
Neurotic, personality and non-psychotic mental disorders (years 1969-1994)								
Males								
Sydney	57	18	3.10	(2.35, 4.02)*	51	18	2.75	(2.04, 3.62)*
CBC-S	76	53	1.44	(1.13, 1.80)	80	53	1.52	(1.20, 1.89)
CBC	133	71	1.87	(1.56, 2.21)	133	71	1.87	(1.56, 2.21)
Females								
Sydney	43	12	3.53	(2.55, 4.75)*	38	12	3.13	(2.22, 4.29)*
CBC-S	25	27	0.92	(0.60, 1.36)	26	27	0.97	(0.64, 1.42)
CBC	68	39	1.73	(1.34, 2.20)	68	39	1.73	(1.34, 2.20)
Both								
Sydney	100	31	3.27	(2.66, 3.98)*	89	31	2.90	(2.33, 3.57)*
CBC-S	101	80	1.26	(1.03, 1.54)	106	80	1.33	(1.09, 1.61)
CBC	201	110	1.82	(1.58, 2.09)	201	110	1.82	(1.58, 2.09)
Alcoholic psychoses, alcohol dependence syndrome, alcohol abuse and accidental poisoning by alcohol								
Males								
Sydney	63	23	2.77	(2.13, 3.55)*	56	23	2.46	(1.86, 3.19)*
CBC-S	84	67	1.26	(1.00, 1.56)	89	67	1.32	(1.06, 1.63)
CBC	147	90	1.64	(1.39, 1.93)	147	90	1.64	(1.39, 1.93)
Females								
Sydney	10	7	1.50	(0.72, 2.77)	9	7	1.33	(0.60, 2.54)
CBC-S	11	18	0.61	(0.31, 1.09)	12	18	0.64	(0.33, 1.14)
CBC	21	25	0.85	(0.53, 1.30)	21	25	0.85	(0.53, 1.30)
Both								
Sydney	73	29	2.49	(1.95, 3.13)*	65	29	2.20	(1.70, 2.81)*
CBC-S	95	85	1.12	(0.91 , 1.37)	100	85	1.18	(0.96, 1.44)
CBC	168	114	1.47	(1.26, 1.71)	168	114	1.47	(1.26, 1.71)
Nonpsychotic mental disorders due to organic brain damage (years 1969-1994)								
Males								
Sydney	11	3	3.17	(1.58, 5.66)*	10	3	2.81	(1.33, 5.20)*
CBC-S	9	8	1.06	(0.49, 2.02)	9	8	1.12	(0.52, 2.09)
CBC	20	12	1.68	(1.02, 2.59)	20	12	1.68	(1.02, 2.59)
Females								
Sydney	34	6	5.30	(3.67, 7.41)*	30	6	4.70	(3.17, 6.70)*
CBC-S	16	12	1.33	(0.76, 2.15)	17	12	1.40	(0.81, 2.24)
CBC	50	18	2.71	(2.01, 3.57)	50	18	2.71	(2.01, 3.57)
Both								
Sydney	45	10	4.55	(3.32, 6.09)*	40	10	4.03	(2.88, 5.50)*
CBC-S	25	21	1.22	(0.79, 1.80)	26	21	1.28	(0.84, 1.88)
CBC	70	30	2.30	(1.79, 2.91)	70	30	2.30	(1.79, 2.91)

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‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Nervous system and sense organs								
Males								
Sydney	104	72	1.44	(1.18, 1.75)*	92	72	1.28	(1.03, 1.57)
CBC-S	211	198	1.07	(0.93, 1.22)	222	198	1.12	(0.98, 1.28)
CBC	315	270	1.17	(1.04, 1.30)	315	270	1.17	(1.04, 1.30)
Females								
Sydney	119	81	1.47	(1.22, 1.76)*	105	81	1.30	(1.07, 1.58)*
CBC-S	181	183	0.99	(0.85, 1.14)	191	183	1.04	(0.90, 1.20)
CBC	300	264	1.14	(1.01, 1.27)	300	264	1.14	(1.01, 1.27)
Both								
Sydney	223	153	1.46	(1.27, 1.66)*	198	153	1.29	(1.12, 1.49)*
CBC-S	392	381	1.03	(0.93, 1.14)	413	381	1.08	(0.98, 1.19)
CBC	615	534	1.15	(1.06, 1.25)	615	534	1.15	(1.06, 1.25)
Inflammatory diseases of central nervous system								
Males								
Sydney	3	3	0.86	(0.17, 2.50)	3	3	0.76	(0.13, 2.36)
CBC-S	16	10	1.60	(0.91, 2.60)	17	10	1.69	(0.98, 2.71)
CBC	19	13	1.41	(0.85, 2.20)	19	13	1.41	(0.85, 2.20)
Females								
Sydney	2	3	0.71	(0.08, 2.57)	2	3	0.63	(0.06, 2.44)
CBC-S	7	7	1.01	(0.41, 2.08)	7	7	1.07	(0.44, 2.16)
CBC	9	10	0.92	(0.42, 1.76)	9	10	0.92	(0.42, 1.76)
Both								
Sydney	5	6	0.79	(0.26, 1.85)	4	6	0.70	(0.21, 1.72)
CBC-S	23	17	1.36	(0.86, 2.04)	24	17	1.43	(0.92, 2.13)
CBC	28	23	1.21	(0.80, 1.74)	28	23	1.21	(0.80, 1.74)
Hereditary, degenerative and other central nervous system								
Males								
Sydney	83	53	1.56	(1.24, 1.93)*	74	53	1.38	(1.08, 1.73)
CBC-S	151	143	1.05	(0.89, 1.23)	159	143	1.11	(0.94, 1.30)
CBC	234	197	1.19	(1.04, 1.35)	234	197	1.19	(1.04, 1.35)
Females								
Sydney	94	63	1.50	(1.21, 1.84)*	83	63	1.33	(1.06, 1.65)*
CBC-S	132	136	0.97	(0.81, 1.15)	139	136	1.03	(0.86, 1.21)
CBC	226	198	1.14	(1.00, 1.30)	226	198	1.14	(1.00, 1.30)
Both								
Sydney	177	116	1.53	(1.31, 1.77)*	157	116	1.35	(1.15, 1.58)*
CBC-S	283	279	1.01	(0.90, 1.14)	298	279	1.07	(0.95, 1.20)
CBC	460	395	1.16	(1.06, 1.28)	460	395	1.16	(1.06, 1.28)
Alzheimer's disease (1979-1994)								
Males								
Sydney	20	11	1.74	(1.06, 2.69)	18	11	1.55	(0.91, 2.45)
CBC-S	38	28	1.34	(0.95, 1.84)	40	28	1.41	(1.01, 1.92)
CBC	58	40	1.46	(1.11, 1.88)	58	40	1.46	(1.11, 1.88)
Females								
Sydney	48	21	2.26	(1.67, 3.00)*	43	21	2.01	(1.45, 2.71)*
CBC-S	49	42	1.16	(0.86, 1.53)	52	42	1.22	(0.91, 1.60)
CBC	97	63	1.53	(1.24, 1.86)	97	63	1.53	(1.24, 1.86)
Both								
Sydney	68	33	2.08	(1.62, 2.64)*	60	33	1.84	(1.41, 2.37)*
CBC-S	87	71	1.23	(0.99, 1.52)	92	71	1.30	(1.05, 1.59)
CBC	155	103	1.50	(1.27, 1.76)	155	103	1.50	(1.27, 1.76)

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‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Parkinson's disease								
Males								
Sydney	27	17	1.62	(1.07, 2.36)*	24	17	1.44	(0.92, 2.14)
CBC-S	40	44	0.91	(0.65, 1.24)	42	44	0.96	(0.69, 1.29)
CBC	67	61	1.10	(0.86, 1.40)	67	61	1.10	(0.86, 1.40)
Females								
Sydney	19	16	1.18	(0.71, 1.85)	17	16	1.05	(0.61, 1.68)
CBC-S	22	34	0.65	(0.40, 0.98)	23	34	0.68	(0.43, 1.02)
CBC	41	50	0.82	(0.59, 1.11)	41	50	0.82	(0.59, 1.11)
Both								
Sydney	46	33	1.41	(1.03, 1.88)*	41	33	1.25	(0.89, 1.69)
CBC-S	62	78	0.79	(0.61, 1.02)	65	78	0.84	(0.65, 1.07)
CBC	108	111	0.97	(0.80, 1.18)	108	111	0.97	(0.80, 1.18)
Motor neurone disease								
Males								
Sydney	16	8	1.95	(1.12, 3.17)*	14	8	1.73	(0.95, 2.89)
CBC-S	19	23	0.82	(0.49, 1.28)	20	23	0.87	(0.53, 1.34)
CBC	35	31	1.12	(0.78, 1.55)	35	31	1.12	(0.78, 1.55)
Females								
Sydney	10	7	1.34	(0.64, 2.46)	9	7	1.19	(0.54, 2.26)
CBC-S	15	18	0.82	(0.46, 1.35)	16	18	0.86	(0.49, 1.41)
CBC	25	26	0.97	(0.63, 1.43)	25	26	0.97	(0.63, 1.43)
Both								
Sydney	26	16	1.66	(1.08, 2.43)*	23	16	1.47	(0.93, 2.21)
CBC-S	34	41	0.82	(0.57, 1.15)	36	41	0.86	(0.60, 1.20)
CBC	60	57	1.05	(0.80, 1.35)	60	57	1.05	(0.80, 1.35)
Multiple sclerosis								
Males								
Sydney	9	5	1.69	(0.77, 3.21)	8	5	1.50	(0.64, 2.95)
CBC-S	14	16	0.90	(0.49, 1.51)	15	16	0.95	(0.53, 1.57)
CBC	23	21	1.10	(0.70, 1.65)	23	21	1.10	(0.70, 1.65)
Females								
Sydney	18	8	2.22	(1.31, 3.51)*	16	8	1.97	(1.12, 3.20)
CBC-S	24	21	1.12	(0.72, 1.67)	25	21	1.18	(0.77, 1.74)
CBC	42	30	1.42	(1.02, 1.92)	42	30	1.42	(1.02, 1.92)
Both								
Sydney	27	13	2.01	(1.32, 2.92)*	24	13	1.78	(1.14, 2.65)*
CBC-S	38	37	1.03	(0.73, 1.14)	40	37	1.08	(0.77, 1.47)
CBC	65	50	1.29	(0.99, 1.64)	65	50	1.29	(0.99, 1.64)
Epilepsy (years 1969-1994)								
Males								
Sydney	4	4	0.95	(0.25, 2.42)	4	4	0.84	(0.20, 2.26)
CBC-S	13	13	0.99	(0.53, 1.70)	14	13	1.05	(0.57, 1.76)
CBC	17	17	0.98	(0.57, 1.57)	17	17	0.98	(0.57, 1.57)
Females								
Sydney	4	3	1.25	(0.34, 3.20)	4	3	1.11	(0.27, 2.99)
CBC-S	5	9	0.58	(0.19, 1.36)	5	9	0.62	(0.21, 1.41)
CBC	9	12	0.77	(0.35, 1.45)	9	12	0.77	(0.35, 1.45)
Both								
Sydney	8	7	1.08	(0.46, 2.12)	7	7	0.95	(0.39, 1.96)
CBC-S	18	22	0.83	(0.49, 1.31)	19	22	0.88	(0.53, 1.37)
CBC	26	29	0.89	(0.58, 1.31)	26	29	0.89	(0.58, 1.31)

†: An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡: An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§: (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Diseases of the circulatory system								
Males								
Sydney	3766	2906	1.30	(1.25, 1.34)*	3339	2906	1.15	(1.11, 1.19)
CBC-S	9352	7971	1.17	(1.15, 1.20)	9855	7971	1.24	(1.21, 1.26)*
CBC	13118	10877	1.21	(1.19, 1.23)	13118	10877	1.21	(1.19, 1.23)
Females								
Sydney	3114	2758	1.13	(1.09, 1.17)	2761	2758	1.00	(0.96, 1.04)
CBC-S	6517	5825	1.12	(1.09, 1.15)	6867	5825	1.18	(1.15, 1.21)*
CBC	9631	8582	1.12	(1.10, 1.14)	9631	8582	1.12	(1.10, 1.14)
Both								
Sydney	6880	5664	1.21	(1.19, 1.24)*	6099	5664	1.08	(1.05, 1.10)
CBC-S	15869	13795	1.15	(1.13, 1.17)	16722	13795	1.21	(1.19, 1.23)*
CBC	22749	19459	1.17	(1.15, 1.18)	22749	19459	1.17	(1.15, 1.18)
Acute rheumatic fever and chronic rheumatic heart diseases								
Males								
Sydney	32	31	1.03	(0.71, 1.46)	28	31	0.92	(0.61, 1.32)
CBC-S	77	87	0.88	(0.70, 1.10)	81	87	0.93	(0.74, 1.15)
CBC	109	118	0.92	(0.76, 1.11)	109	118	0.92	(0.76, 1.11)
Females								
Sydney	41	45	0.92	(0.66, 1.24)	36	45	0.81	(0.57, 1.12)
CBC-S	81	108	0.75	(0.59, 0.93)	85	108	0.79	(0.63, 0.97)
CBC	122	153	0.80	(0.66, 0.95)	122	153	0.80	(0.66, 0.95)
Both								
Sydney	73	76	0.96	(0.76, 1.21)	65	76	0.85	(0.66, 1.09)
CBC-S	158	196	0.81	(0.69, 0.94)	166	196	0.85	(0.73, 0.99)
CBC	231	271	0.85	(0.75, 0.97)	231	271	0.85	(0.75, 0.97)
Essential hypertension								
Males								
Sydney	16	10	1.59	(0.91, 2.58)	14	10	1.41	(0.77, 2.36)
CBC-S	53	28	1.89	(1.42, 2.47)	56	28	1.99	(1.50, 2.59)
CBC	69	38	1.81	(1.41, 2.29)	69	38	1.81	(1.41, 2.29)
Females								
Sydney	16	16	0.97	(0.56, 1.58)	14	16	0.86	(0.47, 1.44)
CBC-S	80	36	2.24	(1.77, 2.79)*	84	36	2.36	(1.88, 2.92)*
CBC	96	52	1.84	(1.49, 2.25)	96	52	1.84	(1.49, 2.25)
Both								
Sydney	32	26	1.21	(0.83, 1.71)	28	26	1.07	(0.71, 1.54)
CBC-S	133	64	2.09	(1.75, 2.47)*	140	64	2.20	(1.85, 2.59)*
CBC	165	90	1.83	(1.56, 2.13)	165	90	1.83	(1.56, 2.13)
Hypertensive heart disease (1969-1994)								
Males								
Sydney	12	9	1.33	(0.68, 2.32)	11	9	1.18	(0.58, 2.12)
CBC-S	28	24	1.18	(0.78, 1.70)	30	24	1.24	(0.83, 1.77)
CBC	40	33	1.22	(0.87, 1.66)	40	33	1.22	(0.87, 1.66)
Females								
Sydney	21	17	1.26	(0.78, 1.93)	19	17	1.12	(0.67, 1.75)
CBC-S	49	33	1.47	(1.09, 1.95)	52	33	1.55	(1.16, 2.04)
CBC	70	50	1.40	(1.09, 1.77)	70	50	1.40	(1.09, 1.77)
Both								
Sydney	33	26	1.28	(0.88, 1.80)	29	26	1.14	(0.76, 1.63)
CBC-S	77	57	1.35	(1.07, 1.69)	81	57	1.42	(1.13, 1.77)
CBC	110	83	1.33	(1.09, 1.60)	110	83	1.33	(1.09, 1.60)

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Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Ischemic heart disease								
Males								
Sydney	2408	1830	1.32	(1.26, 1.37)*	2135	1830	1.17	(1.12, 1.22)
CBC-S	5821	5020	1.16	(1.13, 1.19)	6134	5020	1.22	(1.19, 1.25)*
CBC	8229	6850	1.20	(1.18, 1.23)	8229	6850	1.20	(1.18, 1.23)
Females								
Sydney	1621	1384	1.17	(1.11, 1.23)*	1437	1384	1.04	(0.99, 1.09)
CBC-S	3242	2918	1.11	(1.07, 1.15)	3416	2918	1.17	(1.13, 1.21)*
CBC	4863	4302	1.13	(1.10, 1.16)	4863	4302	1.13	(1.10, 1.16)
Both								
Sydney	4029	3214	1.25	(1.22, 1.29)*	3572	3214	1.11	(1.08, 1.15)
CBC-S	9063	7938	1.14	(1.12, 1.17)	9550	7938	1.20	(1.18, 1.23)*
CBC	13092	11152	1.17	(1.15, 1.19)	13092	11152	1.17	(1.15, 1.19)
Acute myocardial infarction (years 1969-1994)								
Males								
Sydney	1050	693	1.52	(1.43, 1.61)*	931	693	1.34	(1.26, 1.43)
CBC-S	2541	1858	1.37	(1.31, 1.42)	2678	1858	1.44	(1.39, 1.50)*
CBC	3591	2551	1.41	(1.36, 1.45)	3591	2551	1.41	(1.36, 1.45)
Females								
Sydney	573	486	1.18	(1.08, 1.28)	508	486	1.05	(0.96, 1.14)
CBC-S	1332	1029	1.29	(1.23, 1.37)*	1404	1029	1.36	(1.29, 1.44)*
CBC	1905	1515	1.26	(1.20, 1.32)	1905	1515	1.26	(1.20, 1.32)
Both								
Sydney	1623	1179	1.38	(1.31, 1.45)	1439	1179	1.22	(1.16, 1.29)
CBC-S	3873	2887	1.34	(1.30, 1.38)	4081	2887	1.41	(1.37, 1.46)*
CBC	5496	4066	1.35	(1.32, 1.39)	5496	4066	1.35	(1.32, 1.39)
Cerebrovascular disease (stroke)								
Males								
Sydney	595	492	1.21	(1.12, 1.31)	527	492	1.07	(0.98, 1.17)
CBC-S	1548	1340	1.15	(1.10, 1.21)	1631	1340	1.22	(1.16, 1.28)*
CBC	2143	1832	1.17	(1.12, 1.22)	2143	1832	1.17	(1.12, 1.22)
Females								
Sydney	684	679	1.01	(0.93, 1.09)	606	679	0.89	(0.82, 0.97)
CBC-S	1489	1429	1.04	(0.99, 1.10)	1569	1429	1.10	(1.04, 1.15)*
CBC	2173	2108	1.03	(0.99, 1.08)	2173	2108	1.03	(0.99, 1.08)
Both								
Sydney	1279	1170	1.09	(1.03, 1.15)	1134	1170	0.97	(0.91, 1.03)
CBC-S	3037	2770	1.10	(1.06, 1.14)	3200	2770	1.16	(1.12, 120)*
CBC	4316	3940	1.10	(1.06, 1.13)	4316	3940	1.10	(1.06, 1.13)
Diseases of arteries, arterioles & capillaries								
Males								
Sydney	193	172	1.12	(0.97, 1.29)	171	172	1.00	(0.85, 1.16)
CBC-S	613	459	1.34	(1.23, 1.45)*	646	459	1.41	(1.30, 1.52)*
CBC	806	630	1.28	(1.19, 1.37)	806	630	1.28	(1.19, 1.37)
Females								
Sydney	186	186	1.00	(0.86, 1.15)	165	186	0.88	(0.75, 1.03)
CBC-S	513	369	1.39	(1.27, 1.52)*	541	369	1.47	(1.34, 1.59)*
CBC	699	555	1.26	(1.17, 1.36)	699	555	1.26	(1.17, 1.36)
Both								
Sydney	379	358	1.06	(0.95, 1.17)	336	358	0.94	(0.84, 1.04)
CBC-S	1126	828	1.36	(1.28, 1.44)*	1187	828	1.43	(1.35, 1.52)*
CBC	1505	1186	1.27	(1.21, 1.34)	1505	1186	1.27	(1.21, 1.34)

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Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Atherosclerosis								
Males								
Sydney	90	83	1.09	(0.87, 1.34)	80	83	0.96	(0.76, 1.20)
CBC-S	352	219	1.61	(1.45, 1.79)*	371	219	1.70	(1.53, 1.88)*
CBC	442	301	1.47	(1.33, 1.61)	442	301	1.47	(1.33, 1.61)
Females								
Sydney	129	127	1.02	(0.85, 1.21)	114	127	0.90	(0.74, 1.08)
CBC-S	381	243	1.57	(1.42, 1.74)*	401	243	1.66	(1.50, 1.83)*
CBC	510	370	1.38	(1.26, 1.51)	510	370	1.38	(1.26, 1.51)
Both								
Sydney	219	210	1.04	(0.91, 1.19)	194	210	0.93	(0.80, 1.07)
CBC-S	733	461	1.59	(1.48, 1.71)*	772	461	1.68	(1.56, 1.80)*
CBC	952	671	1.42	(1.33, 1.51)	952	671	1.42	(1.33, 1.51)
Aortic aneurysm								
Males								
Sydney	56	57	0.98	(0.74, 1.27)	50	57	0.87	(0.64, 1.14)
CBC-S	141	154	0.91	(0.77, 1.08)	149	154	0.96	(0.81, 1.13)
CBC	197	212	0.93	(0.81, 1.07)	197	212	0.93	(0.81, 1.07)
Females								
Sydney	24	29	0.83	(0.53, 1.23)	21	29	0.73	(0.46, 1.12)
CBC-S	48	62	0.78	(0.57, 1.03)	51	62	0.82	(0.61, 1.08)
CBC	72	91	0.79	(0.62, 1.00)	72	91	0.79	(0.62, 1.00)
Both								
Sydney	80	86	0.93	(0.74, 1.15)	71	86	0.82	(0.64, 1.04)
CBC-S	189	216	0.87	(0.75, 1.01)	199	216	0.92	(0.80, 1.06)
CBC	269	302	0.89	(0.79, 1.00)	269	302	0.89	(0.79, 1.00)
Diseases of veins, lymphatics and other circulatory system								
Males								
Sydney	29	32	0.90	(0.60, 1.29)	26	32	0.79	(0.52, 1.17)
CBC-S	77	88	0.87	(0.69, 1.09)	81	88	0.92	(0.73, 1.14)
CBC	106	121	0.88	(0.72, 1.06)	106	121	0.88	(0.72, 1.06)
Females								
Sydney	28	37	0.76	(0.51, 1.10)	25	37	0.68	(0.44, 1.00)
CBC-S	75	82	0.92	(0.72, 1.15)	79	82	0.97	(0.77, 1.20)
CBC	103	119	0.87	(0.71, 1.05)	103	119	0.87	(0.71, 1.05)
Both								
Sydney	57	69	0.82	(0.62, 1.07)	51	69	0.73	(0.54, 0.96)
CBC-S	152	170	0.89	(0.76, 1.05)	160	170	0.94	(0.80, 1.10)
CBC	209	239	0.87	(0.76, 1.00)	209	239	0.87	(0.76, 1.00)
Diseases of respiratory system								
Males								
Sydney	536	434	1.23	(1.13, 1.34)	475	434	1.09	(1.00, 1.20)
CBC-S	1499	1156	1.30	(1.23, 1.36)	1580	1156	1.37	(1.30, 1.44)*
CBC	2035	1590	1.28	(1.23, 1.34)	2035	1590	1.28	(1.23, 1.34)
Females								
Sydney	371	324	1.15	(1.03, 1.27)	329	324	1.02	(0.91, 1.13)
CBC-S	771	679	1.14	(1.06, 1.22)	812	679	1.20	(1.12, 1.28)*
CBC	1142	1003	1.14	(1.07, 1.21)	1142	1003	1.14	(1.07, 1.21)
Both								
Sydney	907	758	1.20	(1.12, 1.28)	804	758	1.06	(0.99, 1.14)
CBC-S	2270	1835	1.24	(1.19, 1.29)	2392	1835	1.30	(1.25, 1.36)*
CBC	3177	2592	1.23	(1.18, 1.27)	3177	2592	1.23	(1.18, 1.27)

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Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Pneumonia								
Males								
Sydney	153	171	0.90	(0.76, 1.05)	136	171	0.79	(0.67, 0.94)
CBC-S	383	452	0.85	(0.76, 0.94)	404	452	0.89	(0.81, 0.98)
CBC	536	623	0.86	(0.79, 0.94)	536	623	0.86	(0.79, 0.94)
Females								
Sydney	139	177	0.78	(0.66, 0.93)	123	177	0.70	(0.58, 0.83)
CBC-S	341	356	0.96	(0.86, 1.07)	359	356	1.01	(0.91, 1.12)
CBC	480	533	0.90	(0.82, 0.98)	480	533	0.90	(0.82, 0.98)
Both								
Sydney	292	348	0.84	(0.75, 0.94)	259	348	0.74	(0.66, 0.84)
CBC-S	724	808	0.90	(0.83, 0.96)	763	808	0.94	(0.88, 1.01)
CBC	1016	1156	0.88	(0.83, 0.93)	1016	1156	0.88	(0.83, 0.93)
Influenza								
Males								
Sydney	31	17	1.87	(1.27, 2.66)	27	17	1.66	(1.10, 2.41)
CBC-S	70	46	1.53	(1.20, 1.94)	74	46	1.62	(1.27, 2.03)
CBC	101	62	1.62	(1.32, 1.97)	101	62	1.62	(1.32, 1.97)
Females								
Sydney	32	23	1.42	(0.97, 2.01)	28	23	1.26	(0.84, 1.82)
CBC-S	78	47	1.66	(1.31, 2.07)	82	47	1.75	(1.39, 2.17)
CBC	110	70	1.58	(1.30, 1.90)	110	70	1.58	(1.30, 1.90)
Both								
Sydney	63	39	1.61	(1.24, 2.06)	56	39	1.43	(1.08, 1.86)
CBC-S	148	93	1.60	(1.35, 1.88)	156	93	1.68	(1.43, 1.97)
CBC	211	132	1.60	(1.39, 1.83)	211	132	1.60	(1.39, 1.83)
Bronchitis and emphysema								
Males								
Sydney	106	98	1.08	(0.89, 1.31)	94	98	0.96	(0.78, 1.18)
CBC-S	283	263	1.08	(0.95, 1.21)	298	263	1.13	(1.01, 1.27)
CBC	389	361	1.08	(0.97, 1.19)	389	361	1.08	(0.97, 1.19)
Females								
Sydney	33	31	1.07	(0.74, 1.50)	29	31	0.95	(0.64, 1.36)
CBC-S	78	68	1.14	(0.90, 1.42)	82	68	1.20	(0.96, 1.49)
CBC	111	99	1.12	(0.92, 1.35)	111	99	1.12	(0.92, 1.35)
Both								
Sydney	139	129	1.08	(0.91, 1.28)	123	129	0.96	(0.80, 1.14)
CBC-S	361	331	1.09	(0.98, 1.21)	380	331	1.15	(1.04, 1.27)*
CBC	500	460	1.09	(0.98, 1.19)	500	460	1.09	(0.99, 1.19)
Chronic bronchitis and emphysema (years 1969-1994)								
Males								
Sydney	80	65	1.23	(0.98, 1.53)	71	65	1.09	(0.85, 1.38)
CBC-S	196	169	1.16	(1.00, 1.33)	207	169	1.22	(1.06, 1.40)
CBC	276	234	1.18	(1.04, 1.33)	276	234	1.18	(1.04, 1.33)
Females								
Sydney	26	21	1.24	(0.81, 1.81)	23	21	1.10	(0.70, 1.64)
CBC-S	59	47	1.27	(0.96, 1.63)	62	47	1.33	(1.02, 1.71)
CBC	85	68	1.26	(1.00, 1.55)	85	68	1.26	(1.00, 1.55)
Both								
Sydney	106	86	1.23	(1.01, 1.49)	94	86	1.09	(0.88, 1.34)
CBC-S	255	216	1.18	(1.04, 1.34)	269	216	1.25	(1.10, 1.40)
CBC	361	302	1.20	(1.08, 1.33)	361	302	1.20	(1.08, 1.33)

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Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Asthma								
Males								
Sydney	30	18	1.66	(1.12, 2.36)	27	18	1.47	(0.96, 2.14)
CBC-S	67	52	1.30	(1.01, 1.65)	71	52	1.37	(1.07, 1.73)
CBC	97	70	1.39	(1.13, 1.70)	97	70	1.39	(1.13, 1.70)
Females								
Sydney	34	15	2.31	(1.60, 3.23)*	30	15	2.05	(1.38, 2.92)
CBC-S	49	35	1.39	(1.03, 1.84)	52	35	1.46	(1.09, 1.92)
CBC	83	50	1.66	(1.32, 2.06)	83	50	1.66	(1.32, 2.06)
Both								
Sydney	64	33	1.95	(1.50, 2.49)*	57	33	1.73	(1.31, 2.24)
CBC-S	116	87	1.34	(1.10, 1.60)	122	87	1.41	(1.17, 1.68)
CBC	180	120	1.50	(1.29, 1.74)	180	120	1.50	(1.29, 1.74)
Pneumoconioses								
Males								
Sydney	7	4	1.66	(0.66, 3.42)	6	4	1.47	(0.55, 3.16)
CBC-S	197	12	16.8	(4.58, 19.4)*	208	12	17.8	(5.42, 20.3)*
CBC	204	16	12.8	(1.12, 14.7)	204	16	12.8	(1.12, 14.7)
Coal Worker's pneumoconiosis (years 1962-1994)								
Males								
Sydney	0	0						
CBC-S	36	1	71.7	(50.2, 99.2)*	38	1	75.5	(53.4, 103.7)*
CBC	36	1	52.2	(36.5, 72.2)	36	1	52.2	(36.5, 72.2)
Diseases of the digestive system								
Males								
Sydney	283	210	1.35	(1.20, 1.51)*	251	210	1.20	(1.05, 1.35)
CBC-S	632	586	1.08	(1.00, 1.17)	666	586	1.14	(1.05, 1.23)
CBC	915	795	1.15	(1.08, 1.23)	915	795	1.15	(1.08, 1.23)
Females								
Sydney	229	185	1.24	(1.08, 1.41)*	203	185	1.10	(0.95, 1.26)
CBC-S	430	415	1.04	(0.94, 1.14)	453	415	1.09	(0.99, 1.20)
CBC	659	600	1.10	(1.02, 1.19)	659	600	1.10	(1.02, 1.19)
Both								
Sydney	512	395	1.30	(1.19, 1.41)*	454	395	1.15	(1.05, 1.26)
CBC-S	1062	1001	1.06	(1.00, 1.13)	1119	1001	1.12	(1.05, 1.19)
CBC	1574	1396	1.13	(1.07, 1.18)	1574	1396	1.13	(1.07, 1.18)
Ulcers								
Males								
Sydney	49	38	1.28	(0.94, 1.69)	43	38	1.13	(0.82, 1.52)
CBC-S	104	106	0.98	(0.80, 1.19)	110	106	1.03	(0.85, 1.24)
CBC	153	145	1.06	(0.90, 1.24)	153	145	1.06	(0.90, 1.24)
Females								
Sydney	20	21	0.96	(0.58, 1.48)	18	21	0.85	(0.50, 1.35)
CBC-S	46	45	1.02	(0.74, 1.36)	48	45	1.07	(0.79, 1.42)
CBC	66	66	1.00	(0.77, 1.27)	66	66	1.00	(0.77, 1.27)
Both								
Sydney	69	59	1.16	(0.90, 1.47)	61	59	1.03	(0.79, 1.32)
CBC-S	150	152	0.99	(0.84, 1.16)	158	152	1.04	(0.89, 1.22)
CBC	219	211	1.04	(0.91, 1.19)	219	211	1.04	(0.91, 1.19)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Diseases of liver								
Males								
Sydney	121	84	1.44	(1.19, 1.72)*	107	84	1.28	(1.05, 1.54)
CBC-S	244	242	1.01	(0.89, 1.14)	257	242	1.06	(0.94, 1.20)
CBC	365	326	1.12	(1.01, 1.24)	365	326	1.12	(1.01, 1.24)
Females								
Sydney	65	49	1.32	(1.02, 1.69)*	58	49	1.17	(0.89, 1.52)
CBC-S	99	123	0.80	(0.65, 0.98)	104	123	0.85	(0.69, 1.02)
CBC	164	173	0.95	(0.81, 1.11)	164	173	0.95	(0.81, 1.11)
Both								
Sydney	186	133	1.40	(1.20, 1.61)*	165	133	1.24	(1.06, 1.44)*
CBC-S	343	365	0.94	(0.84, 1.04)	361	365	0.99	(0.89, 1.10)
CBC	529	498	1.06	(0.97, 1.16)	529	498	1.06	(0.97, 1.16)
Chronic liver disease and cirrhosis								
Males								
Sydney	108	77	1.41	(1.15, 1.70)*	96	77	1.25	(1.01, 1.52)*
CBC-S	206	222	0.93	(0.81, 1.07)	217	222	0.98	(0.85, 1.12)
CBC	314	298	1.05	(0.94, 1.18)	314	298	1.05	(0.94, 1.18)
Females								
Sydney	51	42	1.20	(0.90, 1.58)	45	42	1.07	(0.78, 1.43)
CBC-S	79	107	0.74	(0.58, 0.92)	83	107	0.78	(0.62, 0.96)
CBC	130	149	0.87	(0.73, 1.03)	130	149	0.87	(0.73, 1.03)
Both								
Sydney	159	119	1.33	(1.13, 1.56)*	141	119	1.18	(1.00, 1.40)*
CBC-S	285	329	0.87	(0.77, 0.97)	300	329	0.91	(0.81, 1.02)
CBC	444	448	0.99	(0.90, 1.09)	444	448	0.99	(0.90, 1.09)
Alcoholic liver diseases (years 1969-1994)								
Males								
Sydney	25	27	0.92	(0.59, 1.36)	22	27	0.81	(0.51, 1.23)
CBC-S	62	80	0.77	(0.59, 0.99)	65	80	0.81	(0.63, 1.03)
CBC	87	108	0.81	(0.65, 1.00)	87	108	0.81	(0.65, 1.00)
Females								
Sydney	8	11	0.73	(0.32, 1.44)	7	11	0.65	(0.26, 1.33)
CBC-S	8	30	0.27	(0.12, 0.53)	8	30	0.28	(0.13, 0.55)
CBC	16	41	0.39	(0.22, 0.64)	16	41	0.39	(0.22, 0.64)
Both								
Sydney	33	38	0.87	(0.60, 1.22)	29	38	0.77	(0.51, 1.10)
CBC-S	70	110	0.64	(0.50, 0.80)	74	110	0.67	(0.53, 0.84)
CBC	103	148	0.69	(0.57, 0.84)	103	148	0.69	(0.57, 0.84)
Diseases of pancreas								
Males								
Sydney	12	9	1.36	(0.70, 2.38)	11	9	1.21	(0.59, 2.18)
CBC-S	36	25	1.45	(1.02, 2.01)	38	25	1.53	(1.08, 2.10)
CBC	48	34	1.43	(1.05, 1.89)	48	34	1.43	(1.05, 1.89)
Females								
Sydney	8	7	1.10	(0.47, 2.16)	7	7	0.97	(0.39, 2.00)
CBC-S	17	17	1.01	(0.59, 1.62)	18	17	1.07	(0.63, 1.69)
CBC	25	24	1.04	(0.67, 1.53)	25	24	1.04	(0.67, 1.53)
Both								
Sydney	20	16	1.24	(0.76, 1.92)	18	16	1.10	(0.65, 1.75)
CBC-S	53	42	1.27	(0.95, 1.66)	56	42	1.34	(1.01, 1.74)
CBC	73	58	1.26	(0.99, 1.59)	73	58	1.26	(0.99, 1.59)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S

‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.

§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Diseases of genitourinary system								
Males								
Sydney	127	111	1.14	(0.95, 1.36)	113	111	1.01	(0.83, 1.22)
CBC-S	373	306	1.22	(1.10, 1.35)	393	306	1.28	(1.16, 1.42)
CBC	500	418	1.20	(1.09, 1.31)	500	418	1.20	(1.09, 1.31)
Females								
Sydney	82	93	0.88	(0.70, 1.09)	73	93	0.78	(0.61, 0.98)
CBC-S	247	206	1.20	(1.06, 1.36)*	260	206	1.26	(1.12, 1.43)*
CBC	329	299	1.10	(0.98, 1.22)	329	299	1.10	(0.98, 1.22)
Both								
Sydney	209	205	1.02	(0.89, 1.17)	185	205	0.91	(0.78, 1.05)
CBC-S	620	512	1.21	(1.12, 1.31)*	653	512	1.28	(1.18, 1.38)*
CBC	829	717	1.16	(1.08, 1.24)	829	717	1.16	(1.08, 1.24)
Diseases of kidney and ureter								
Males								
Sydney	81	78	1.04	(0.83, 1.30)	72	78	0.92	(0.72, 1.16)
CBC-S	237	213	1.11	(0.97, 1.26)	250	213	1.17	(1.03, 1.33)*
CBC	318	291	1.09	(0.98, 1.22)	318	291	1.09	(0.98, 1.22)
Females								
Sydney	73	81	0.90	(0.70, 1.13)	65	81	0.80	(0.61, 1.02)
CBC-S	207	181	1.15	(1.00, 1.31)*	218	181	1.21	(1.05, 1.38)*
CBC	280	262	1.07	(0.95, 1.20)	280	262	1.07	(0.95, 1.20)
Both								
Sydney	154	159	0.97	(0.82, 1.13)	137	159	0.86	(0.72, 1.02)
CBC-S	444	394	1.13	(1.03, 1.24)	468	394	1.19	(1.08, 1.30)*
CBC	598	553	1.08	(1.00, 1.17)	598	553	1.08	(1.00, 1.17)
Nephritis								
Males								
Sydney	29	36	0.81	(0.55, 1.17)	26	36	0.72	(0.47, 1.06)
CBC-S	90	102	0.88	(0.71, 1.09)	95	102	0.93	(0.75, 1.14)
CBC	119	137	0.87	(0.72, 1.04)	119	137	0.87	(0.72, 1.04)
Females								
Sydney	22	36	0.61	(0.38, 0.92)	20	36	0.54	(0.33, 0.84)
CBC-S	75	84	0.89	(0.70, 1.12)	79	84	0.94	(0.75, 1.17)
CBC	97	120	0.81	(0.65, 0.98)	97	120	0.81	(0.65, 0.98)
Both								
Sydney	51	72	0.71	(0.53, 0.93)	45	72	0.63	(0.46, 0.84)
CBC-S	165	186	0.89	(0.76, 1.03)	174	186	0.94	(0.80, 1.09)
CBC	216	258	0.84	(0.73, 0.96)	216	258	0.84	(0.73, 0.96)
Calculus of kidney and ureter (years 1952-1994)								
Males								
Sydney	5	2	2.19	(0.71, 5.12)	4	2	1.94	(0.57, 4.76)
CBC-S	7	6	1.10	(0.44, 2.27)	7	6	1.16	(0.48, 2.35)
CBC	12	9	1.39	(0.72, 2.42)	12	9	1.39	(0.72, 2.42)
Females								
Sydney	1	2	0.50	(0.01, 2.76)	1	2	0.44	(0.00, 2.66)
CBC-S	5	5	1.08	(0.35, 2.52)	5	5	1.14	(0.38, 2.60)
CBC	6	7	0.90	(0.33, 1.97)	6	7	0.90	(0.33, 1.97)
Both								
Sydney	6	4	1.40	(0.51, 3.04)	5	4	1.24	(0.42, 2.82)
CBC-S	12	11	1.09	(0.56, 1.91)	13	11	1.15	(0.61, 1.98)
CBC	18	15	1.18	(0.70, 1.86)	18	15	1.18	(0.70, 1.86)
Complications of pregrancy, child birth, and the puerperium								
Sydney	7	9	0.82	(0.33, 1.68)	6	9	0.72	(0.27, 1.55)
CBC-S	39	22	1.74	(1.24, 2.38)*	41	22	1.83	(1.32, 2.49)*
CBC	46	31	1.48	(1.09, 1.98)	46	31	1.48	(1.09, 1.98)

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‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Diseases of the skin and subcutaneous tissue								
Males								
Sydney	5	4	1.33	(0.43, 3.11)	4	4	1.18	(0.35, 2.90)
CBC-S	15	10	1.47	(0.82, 2.42)	16	10	1.55	(0.88, 2.52)
CBC	20	14	1.43	(0.87, 2.21)	20	14	1.43	(0.87, 2.21)
Females								
Sydney	9	6	1.51	(0.69, 2.87)	8	6	1.34	(0.58, 2.64)
CBC-S	22	13	1.72	(1.08, 2.60)	23	13	1.81	(1.15, 2.72)
CBC	31	19	1.65	(1.12, 2.35)	31	19	1.65	(1.12, 2.35)
Both								
Sydney	14	10	1.44	(0.79, 2.42)	12	10	1.28	(0.67, 2.21)
CBC-S	37	23	1.61	(1.13, 2.22)	39	23	1.70	(1.21, 2.32)
CBC	51	33	1.56	(1.16, 2.05)	51	33	1.56	(1.16, 2.05)
Diseases of the musculoskeletal system and connective tissue								
Males								
Sydney	16	12	1.32	(0.76, 2.15)	14	12	1.17	(0.64, 1.96)
CBC-S	33	33	1.00	(0.69, 1.40)	35	33	1.05	(0.73, 1.46)
CBC	49	45	1.08	(0.80, 1.43)	49	45	1.08	(0.80, 1.43)
Females								
Sydney	37	27	1.38	(0.97, 1.91)	33	27	1.23	(0.84, 1.72)
CBC-S	65	60	1.08	(0.84, 1.38)	68	60	1.14	(0.89, 1.45)
CBC	102	87	1.18	(0.96, 1.43)	102	87	1.18	(0.96, 1.43)
Both								
Sydney	53	39	1.36	(1.02, 1.79)	47	39	1.21	(0.89, 1.61)
CBC-S	98	93	1.05	(0.85, 1.28)	103	93	1.11	(0.90, 1.34)
CBC	151	132	1.14	(0.97, 1.34)	151	132	1.14	(0.97, 1.34)
Congenital Abnormalities								
Males								
Sydney	11	8	1.43	(0.71, 2.56)	10	8	1.27	(0.60, 2.35)
CBC-S	26	23	1.15	(0.75, 1.68)	27	23	1.21	(0.80, 1.76)
CBC	37	30	1.22	(0.86, 1.68)	37	30	1.22	(0.86, 1.68)
Females								
Sydney	14	7	1.88	(1.03, 3.15)	12	7	1.66	(0.87, 2.88)
CBC-S	26	20	1.32	(0.86, 1.94)	27	20	1.40	(0.92, 2.02)
CBC	40	27	1.48	(1.05, 2.01)	40	27	1.48	(1.05, 2.01)
Both								
Sydney	25	15	1.65	(1.07, 2.43)	22	15	1.46	(0.92, 2.21)
CBC-S	52	42	1.23	(0.92, 1.61)	55	42	1.30	(0.98, 1.69)
CBC	77	57	1.34	(1.06, 1.68)	77	57	1.34	(1.06, 1.68)
Auto-immune diseases (years 1979-1994)								
Males								
Sydney	5	5	1.07	(0.34, 2.49)	4	5	0.95	(0.28, 2.32)
CBC-S	11	14	0.81	(0.40, 1.45)	12	14	0.85	(0.43, 1.50)
CBC	16	18	0.87	(0.50, 1.42)	16	18	0.87	(0.50, 1.42)
Females								
Sydney	18	11	1.57	(0.93, 2.48)	16	11	1.39	(0.79, 2.26)
CBC-S	33	29	1.16	(0.80, 1.62)	35	29	1.22	(0.85, 1.70)
CBC	51	40	1.27	(0.95, 1.68)	51	40	1.27	(0.95, 1.68)
Both								
Sydney	23	16	1.42	(0.90, 2.14)	20	16	1.26	(0.78, 1.94)
CBC-S	44	42	1.04	(0.76, 1.40)	46	42	1.10	(0.81, 1.47)
CBC	67	58	1.15	(0.89, 1.46)	67	58	1.15	(0.89, 1.46)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 3: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 20 years and over

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Injury and poisoning								
Males								
Sydney	445	457	0.97	(0.89, 1.07)	395	457	0.86	(0.78, 0.95)
CBC-S	1405	1358	1.03	(0.98, 1.09)	1481	1358	1.09	(1.04, 1.15)*
CBC	1850	1815	1.02	(0.97, 1.07)	1850	1815	1.02	(0.97, 1.07)
Females								
Sydney	187	215	0.87	(0.75, 1.00)	166	215	0.77	(0.66, 0.90)
CBC-S	393	526	0.75	(0.67, 0.82)	414	526	0.79	(0.71, 0.87)
CBC	580	741	0.78	(0.72, 0.85)	580	741	0.78	(0.72, 0.85)
Both								
Sydney	632	672	0.94	(0.87, 1.02)	560	672	0.83	(0.77, 0.91)
CBC-S	1798	1884	0.95	(0.91, 1.00)	1895	1884	1.01	(0.96, 1.05)
CBC	2430	2556	0.95	(0.91, 0.99)	2430	2556	0.95	(0.91, 0.99)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p < 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 4: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 0 - 14 years

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
All causes								
Males								
Sydney	382	439	0.87	(0.79, 0.96)	347	439	0.79	(0.71, 0.88)
CBC-S	1631	1474	1.11	(1.05, 1.16)*	1691	1474	1.15	(1.09, 1.20)*
CBC	2013	1912	1.05	(1.01, 1.10)	2013	1912	1.05	(1.01, 1.10)
Females								
Sydney	286	317	0.90	(0.80, 1.01)	260	317	0.82	(0.72, 0.93)
CBC-S	1242	1066	1.16	(1.10, 1.23)*	1288	1066	1.21	(1.14, 1.28)*
CBC	1528	1383	1.10	(1.05, 1.16)	1528	1383	1.10	(1.05, 1.16)
Both								
Sydney	668	755	0.88	(0.82, 0.95)	607	755	0.80	(0.74, 0.87)
CBC-S	2873	2540	1.13	(1.09, 1.17)*	2978	2540	1.17	(1.13, 1.22)*
CBC	3541	3295	1.07	(1.04, 1.11)	3541	3295	1.07	(1.04, 1.11)
Infectious and parasitic diseases								
Males								
Sydney	21	27	0.77	(0.48, 1.18)	19	27	0.69	(0.41, 1.07)
CBC-S	90	88	1.03	(0.83, 1.26)	95	88	1.08	(0.88, 1.32)
CBC	111	115	0.97	(0.80, 1.16)	111	115	0.97	(0.80, 1.16)
Females								
Sydney	18	21	0.84	(0.50, 1.34)	16	21	0.75	(0.43, 1.22)
CBC-S	73	70	1.05	(0.82, 1.32)	77	70	1.10	(0.87, 1.38)
CBC	91	91	1.00	(0.81, 1.23)	91	91	1.00	(0.81, 1.23)
Both								
Sydney	39	48	0.80	(0.57, 1.10)	35	48	0.71	(0.50, 0.99)
CBC-S	163	157	1.04	(0.88, 1.21)	172	157	1.09	(0.93, 1.27)
CBC	202	206	0.98	(0.85, 1.13)	202	206	0.98	(0.85, 1.13)
Malignant neoplasms								
Males								
Sydney	20	14	1.42	(0.87, 2.20)	18	14	1.29	(0.77, 2.04)
CBC-S	45	49	0.93	(0.68, 1.24)	47	49	0.96	(0.70, 1.28)
CBC	65	63	1.04	(0.80, 1.32)	65	63	1.04	(0.80, 1.32)
Females								
Sydney	9	10	0.86	(0.39, 1.63)	8	10	0.78	(0.34, 1.53)
CBC-S	28	36	0.77	(0.51, 1.12)	29	36	0.80	(0.54, 1.15)
CBC	37	47	0.79	(0.56, 1.09)	37	47	0.79	(0.56, 1.09)
Both								
Sydney	29	25	1.18	(0.79, 1.70)	26	25	1.07	(0.70, 1.57)
CBC-S	73	85	0.86	(0.67, 1.08)	76	85	0.89	(0.70, 1.12)
CBC	102	109	0.93	(0.76, 1.13)	102	109	0.93	(0.76, 1.13)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 4: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 0 - 14 years

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Brain (years 1958-1994)								
Males								
Sydney	1	2	0.58	(0.01, 3.22)	1	2	0.53	(0.00, 3.13)
CBC-S	6	6	0.96	(0.35, 2.08)	6	6	0.99	(0.37, 2.13)
CBC	7	8	0.88	(0.35, 1.81)	7	8	0.88	(0.35, 1.81)
Females								
Sydney	2	1	1.43	(0.16, 5.16)	2	1	1.30	(0.12, 4.95)
CBC-S	3	5	0.60	(0.12, 1.74)	3	5	0.62	(0.13, 1.78)
CBC	5	6	0.78	(0.25, 1.82)	5	6	0.78	(0.25, 1.82)
Both								
Sydney	3	3	0.96	(0.19, 2.80)	3	3	0.87	(0.16, 2.67)
CBC-S	9	11	0.80	(0.36, 1.51)	9	11	0.83	(0.38, 1.55)
CBC	12	14	0.83	(0.43, 1.45)	12	14	0.83	(0.43, 1.45)
Leukemias								
Males								
Sydney	10	6	1.61	(0.77, 2.96)	9	6	1.47	(0.67, 2.77)
CBC-S	18	21	0.84	(0.50, 1.33)	19	21	0.87	(0.52, 1.37)
CBC	28	28	1.01	(0.67, 1.47)	28	28	1.01	(0.67, 1.47)
Females								
Sydney	4	5	0.86	(0.23, 2.20)	4	5	0.78	(0.19, 2.09)
CBC-S	13	16	0.81	(0.43, 1.38)	13	16	0.84	(0.45, 1.42)
CBC	17	21	0.82	(0.48, 1.31)	17	21	0.82	(0.48, 1.31)
Both								
Sydney	14	11	1.29	(0.70, 2.16)	13	11	1.17	(0.62, 2.02)
CBC-S	31	37	0.83	(0.56, 1.17)	32	37	0.86	(0.59, 1.21)
CBC	45	48	0.93	(0.68, 1.25)	45	48	0.93	(0.68, 1.25)
Endocrine, nutritional, and metabolic diseases and immunity disorders								
Males								
Sydney	4	5	0.80	(0.21, 2.04)	4	5	0.71	(0.17, 1.91)
CBC-S	28	17	1.66	(1.10, 2.40)	30	17	1.75	(1.18, 2.50)*
CBC	32	22	1.46	(1.00, 2.06)	32	22	1.46	(1.00, 2.06)
Females								
Sydney	3	4	0.76	(0.15, 2.23)	3	4	0.68	(0.12, 2.09)
CBC-S	20	13	1.49	(0.91, 2.30)	21	13	1.57	(0.97, 2.40)
CBC	23	17	1.33	(0.84, 1.99)	23	17	1.33	(0.84, 1.99)
Both								
Sydney	7	9	0.78	(0.31, 1.61)	6	9	0.69	(0.26, 1.49)
CBC-S	48	30	1.59	(1.17, 2.10)*	51	30	1.67	(1.24, 2.20)
CBC	55	39	1.40	(1.06, 1.82)	55	39	1.40	(1.06, 1.82)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 4: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 0 - 14 years

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Blood and blood-forming organs								
Males								
Sydney	1	2	0.66	(0.01, 3.65)	1	2	0.58	(0.00, 3.52)
CBC-S	9	5	1.74	(0.79, 3.30)	9	5	1.83	(0.86, 3.42)
CBC	10	7	1.49	(0.71, 2.74)	10	7	1.49	(0.71, 2.74)
Females								
Sydney								
CBC-S	2	4	0.51	(0.06, 1.82)	2	4	0.53	(0.07, 1.87)
CBC	2	5	0.39	(0.04, 1.41)	2	5	0.39	(0.04, 1.41)
Both								
Sydney	1	3	0.37	(0.00, 2.08)	1	3	0.33	(0.00, 2.00)
CBC-S	11	9	1.20	(0.60, 2.16)	12	9	1.27	(0.65, 2.24)
CBC	12	12	1.02	(0.52, 1.77)	12	12	1.02	(0.52, 1.77)
Mental disorders								
Males								
Sydney	1	0	2.13	(0.03, 11.9)	1	0	1.89	(0.01, 11.4)
CBC-S	4	2	2.52	(0.68, 6.45)	4	2	2.65	(0.75, 6.64)
CBC	5	2	2.43	(0.78, 5.67)	5	2	2.43	(0.78, 5.67)
Females								
Sydney	1	0	2.48	(0.03, 13.8)	1	0	2.20	(0.01, 13.3)
CBC-S								
CBC	1	2	0.56	(0.01, 3.13)	1	2	0.56	(0.01, 3.13)
Both								
Sydney	2	1	2.29	(0.26, 8.28)	2	1	2.03	(0.18, 7.86)
CBC-S	4	3	1.35	(0.36, 3.46)	4	3	1.42	(0.40, 3.56)
CBC	6	4	1.56	(0.57, 3.40)	6	4	1.56	(0.57, 3.40)
Nervous system and sense organs								
Males								
Sydney	10	14	0.72	(0.35, 1.33)	9	14	0.64	(0.29, 1.22)
CBC-S	32	47	0.69	(0.47, 0.97)	34	47	0.73	(0.50, 1.01)
CBC	42	60	0.70	(0.50, 0.94)	42	60	0.70	(0.50, 0.94)
Females								
Sydney	10	10	0.97	(0.47, 1.79)	9	10	0.86	(0.39, 1.65)
CBC-S	34	35	0.98	(0.68, 1.37)	36	35	1.03	(0.72, 1.43)
CBC	44	45	0.98	(0.71, 1.31)	44	45	0.98	(0.71, 1.31)
Both								
Sydney	20	24	0.83	(0.51, 1.28)	18	24	0.74	(0.43, 1.17)
CBC-S	66	81	0.81	(0.63, 1.03)	70	81	0.86	(0.67, 1.08)
CBC	86	105	0.82	(0.65, 1.01)	86	105	0.82	(0.65, 1.01)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 4: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 0 - 14 years

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Diseases of the circulatory system								
Males								
Sydney	5	4	1.41	(0.45, 3.29)	4	4	1.25	(0.37, 3.06)
CBC-S	14	12	1.13	(0.62, 1.90)	15	12	1.19	(0.66, 1.98)
CBC	19	16	1.19	(0.72, 1.86)	19	16	1.19	(0.72, 1.86)
Females								
Sydney	4	3	1.32	(0.35, 3.37)	4	3	1.17	(0.28, 3.15)
CBC-S	10	11	0.95	(0.45, 1.74)	11	11	1.00	(0.49, 1.81)
CBC	14	14	1.03	(0.56, 1.73)	14	14	1.03	(0.56, 1.73)
Both								
Sydney	9	7	1.37	(0.62, 2.59)	8	7	1.21	(0.52, 2.39)
CBC-S	24	23	1.05	(0.67, 1.56)	25	23	1.10	(0.72, 1.62)
CBC	33	30	1.12	(0.77, 1.57)	33	30	1.12	(0.77, 1.57)
Diseases of respiratory system								
Males								
Sydney	62	58	1.07	(0.82, 1.37)	55	58	0.95	(0.71, 1.24)
CBC-S	289	188	1.53	(1.36, 1.72)*	305	188	1.62	(1.44, 1.81)*
CBC	351	246	1.42	(1.28, 1.58)	351	246	1.42	(1.28, 1.58)
Females								
Sydney	41	45	0.91	(0.65, 1.23)	36	45	0.80	(0.56, 1.11)
CBC-S	257	148	1.73	(1.53, 1.96)*	271	148	1.83	(1.61, 2.06)*
CBC	298	194	1.54	(1.37, 1.72)	298	194	1.54	(1.37, 1.72)
Both								
Sydney	103	103	1.00	(0.81, 1.21)	91	103	0.88	(0.71, 1.09)
CBC-S	546	337	1.62	(1.49, 1.76)*	575	337	1.71	(1.57, 1.85)*
CBC	649	440	1.47	(1.36, 1.59)	649	440	1.47	(1.36, 1.59)
Pneumonia								
Males								
Sydney	44	43	1.02	(0.74, 1.37)	39	43	0.91	(0.64, 1.24)
CBC-S	223	140	1.60	(1.39, 1.82)*	235	140	1.68	(1.47, 1.91)*
CBC	267	183	1.46	(1.29, 1.65)	267	183	1.46	(1.29, 1.65)
Females								
Sydney	37	34	1.10	(0.77, 1.51)	33	34	0.97	(0.67, 1.37)
CBC-S	202	110	1.83	(1.59, 2.10)*	213	110	1.93	(1.68, 2.21)*
CBC	239	144	1.66	(1.46, 1.88)	239	144	1.66	(1.46, 1.88)
Both								
Sydney	81	77	1.05	(0.84, 1.31)	72	77	0.93	(0.73, 1.18)
CBC-S	425	250	1.70	(1.54, 1.87)*	448	250	1.79	(1.63, 1.97)*
CBC	506	327	1.55	(1.42, 1.69)	506	327	1.55	(1.42, 1.69)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 4: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 0 - 14 years

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Asthma								
Males								
Sydney	0	0						
CBC-S	5	2	2.55	(0.82, 5.95)	5	2	2.69	(0.90, 6.14)
CBC	5	3	1.97	(0.64, 4.61)	5	3	1.97	(0.64, 4.61)
Females								
Sydney	0	0						
CBC-S	2	1	1.44	(0.16, 5.20)	2	1	1.52	(0.19, 5.32)
CBC	2	2	1.12	(0.13, 4.03)	2	2	1.12	(0.13, 4.03)
Both								
Sydney	0	0						
CBC-S	7	3	2.09	(0.84, 4.31)	7	3	2.20	(0.91, 4.46)
CBC	7	4	1.62	(0.65, 3.34)	7	4	1.62	(0.65, 3.34)
Diseases of the digestive system								
Males								
Sydney	10	7	1.37	(0.65, 2.52)	9	7	1.21	(0.55, 2.31)
CBC-S	16	24	0.66	(0.38, 1.07)	17	24	0.70	(0.40, 1.12)
CBC	26	32	0.82	(0.54, 1.21)	26	32	0.82	(0.54, 1.21)
Females								
Sydney	3	5	0.57	(0.12, 1.68)	3	5	0.51	(0.09, 1.58)
CBC-S	19	18	1.08	(0.65, 1.69)	20	18	1.14	(0.70, 1.76)
CBC	22	23	0.97	(0.61, 1.46)	22	23	0.97	(0.61, 1.46)
Both								
Sydney	13	13	1.04	(0.55, 1.77)	12	13	0.92	(0.47, 1.62)
CBC-S	35	42	0.84	(0.58, 1.16)	37	42	0.88	(0.62, 1.22)
CBC	48	54	0.88	(0.65, 1.17)	48	54	0.88	(0.65, 1.17)
Diseases of genitourinary system								
Males								
Sydney	1	2	0.48	(0.01, 2.65)	1	2	0.42	(0.00, 2.56)
CBC-S	7	7	1.02	(0.41, 2.10)	7	7	1.07	(0.44, 2.17)
CBC	8	9	0.89	(0.38, 1.76)	8	9	0.89	(0.38, 1.76)
Females								
Sydney	2	2	1.15	(0.13, 4.17)	2	2	1.02	(0.09, 3.96)
CBC-S	3	6	0.52	(0.10, 1.52)	3	6	0.55	(0.12, 1.56)
CBC	5	8	0.67	(0.21, 1.55)	5	8	0.67	(0.21, 1.55)
Both								
Sydney	3	4	0.78	(0.16, 2.29)	3	4	0.69	(0.12, 2.15)
CBC-S	10	13	0.79	(0.38, 1.45)	11	13	0.83	(0.41, 1.51)
CBC	13	16	0.79	(0.42, 1.35)	13	16	0.79	(0.42, 1.35)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p<0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p<0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 4: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 0 - 14 years

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Diseases of the skin and subcutaneous tissue								
Males								
Sydney	0	0						
CBC-S	5	3	1.66	(0.53, 3.87)	5	3	1.75	(0.58, 3.99)
CBC	5	4	1.26	(0.41, 2.94)	5	4	1.26	(0.41, 2.92)
Females								
Sydney	1	1	1.41	(0.02, 7.82)	1	1	1.25	(0.01, 7.54)
CBC-S	1	2	0.44	(0.01, 2.42)	1	2	0.46	(0.01, 2.46)
CBC	2	3	0.67	(0.07, 2.40)	2	3	0.67	(0.07, 2.40)
Both								
Sydney	1	2	0.60	(0.01, 3.36)	1	2	0.54	(0.00, 3.24)
CBC-S	6	5	1.13	(0.41, 2.46)	6	5	1.19	(0.45, 2.54)
CBC	7	7	1.00	(0.40, 2.07)	7	7	1.00	(0.40, 2.07)
Diseases of the musculoskeletal system and connective tissue								
Males								
Sydney	1	0	3.54	(0.05, 19.7)	1	0	3.14	(0.02, 19.0)
CBC-S	3	1	3.19	(0.64, 9.33)	3	1	3.37	(0.72, 9.59)
CBC	4	1	3.27	(0.88, 8.38)	4	1	3.27	(0.88, 8.38)
Females								
Sydney	1	0	3.11	(0.04, 17.3)	1	0	2.76	(0.02, 16.9)
CBC-S								
CBC	1	1	0.71	(0.01, 3.96)	1	1	0.71	(0.01, 3.96)
Both								
Sydney	2	1	3.31	(0.37, 12.0)	2	1	2.93	(0.26,11.35)
CBC-S	3	2	1.48	(0.30, 4.33)	3	2	1.56	(0.33, 4.45)
CBC	5	3	1.90	(0.61, 4.44)	5	3	1.90	(0.61, 4.44)
Injury and poisoning								
Males								
Sydney	49	75	0.66	(0.49, 0.87)	43	75	0.58	(0.42, 0.78)
CBC-S	252	255	0.99	(0.87, 1.12)	266	255	1.04	(0.92, 1.17)
CBC	301	330	0.91	(0.81, 1.02)	301	330	0.91	(0.81, 1.02)
Females								
Sydney	27	41	0.66	(0.44, 0.97)	24	41	0.59	(0.38, 0.88)
CBC-S	176	139	1.26	(1.08, 1.46)*	185	139	1.33	(1.15, 1.54)*
CBC	203	180	1.13	(0.98, 1.29)	203	180	1.13	(0.98, 1.29)
Both								
Sydney	76	115	0.66	(0.52, 0.82)	67	115	0.58	(0.45, 0.74)
CBC-S	428	394	1.09	(0.98, 1.19)	451	394	1.14	(1.04, 1.25)*
CBC	504	510	0.99	(0.90, 1.08)	504	510	0.99	(0.90, 1.08)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 4: Observed (Obs) and expected (Exp) deaths, uncorrected and corrected standardized mortality ratios (SMR) by sex for Sydney, Cape Breton County excluding Sydney (CBC-S) and Cape Breton County (CBC), 1951 - 1994; age group: 0 - 14 years

Cause	Uncorrected				Corrected			
Geographical area[†,‡]	Obs	Exp	SMR	(95% CI)	Obs	Exp	SMR	(95%CI)[§]
Congenital abnormalities (0 -1 year)								
Males								
Sydney	64	53	1.21	(0.93, 1.54)	57	53	1.07	(0.81, 1.39)
CBC-S	190	181	1.05	(0.91, 1.21)	200	181	1.11	(0.96, 1.27)
CBC	254	234	1.09	(0.96, 1.23)	254	234	1.09	(0.96, 1.23)
Females								
Sydney	43	47	0.92	(0.67, 1.24)	38	47	0.82	(0.58, 1.12)
CBC-S	178	159	1.12	(0.96, 1.30)	188	159	1.18	(1.02, 1.36)*
CBC	221	205	1.08	(0.94, 1.23)	221	205	1.08	(0.94, 1.23)
Both								
Sydney	107	100	1.08	(0.88, 1.30)	95	100	0.95	(0.77, 1.17)
CBC-S	368	340	1.08	(0.98, 1.20)	388	340	1.14	(1.03, 1.26)
CBC	475	439	1.08	(0.99, 1.18)	475	439	1.08	(0.99, 1.18)
Certain conditions originating in the perinatal period (0 - 1 year)								
Males								
Sydney	118	156	0.76	(0.63, 0.91)	105	156	0.67	(0.5E 0.81)
CBC-S	570	519	1.10	(1.01, 1.19)	601	519	1.16	(1.07, 1.25)*
CBC	688	674	1.02	(0.95, 1.10)	688	674	1.02	(0.95, 1.10)
Females								
Sydney	96	108	0.89	(0.72, 1.09)	85	108	0.79	(0.63, 0.98)
CBC-S	373	361	1.03	(0.93, 1.14)	393	361	1.09	(0.98, 1.20)
CBC	469	469	1.00	(0.91, 1.10)	469	469	1.00	(0.91, 1.10)
Both								
Sydney	214	263	0.81	(0.71, 0.93)	190	263	0.72	(0.62, 0.83)
CBC-S	943	879	1.07	(1.00, 1.14)*	994	879	1.13	(1.06, 1.20)
CBC	1157	1143	1.01	(0.95, 1.07)	1157	1143	1.01	(0.95, 1.07)
Sudden infant death syndrome (0 - 1 year)								
Males								
Sydney	2	4	0.49	(0.06, 1.77)	2	4	0.44	(0.04, 1.69)
CBC-S	21	17	1.23	(0.76, 1.89)	22	17	1.30	(0.82, 1.97)
CBC	23	21	1.09	(0.69, 1.64)	23	21	1.09	(0.69, 1.64)
Females								
Sydney	7	3	2.53	(1.01, 5.22)*	6	3	2.25	(0.84, 4.83)
CBC-S	11	11	0.99	(0.49, 1.77)	12	11	1.04	(0.53, 1.84)
CBC	18	14	1.30	(0.77, 2.05)	18	14	1.30	(0.77, 2.05)
Both								
Sydney	9	7	1.32	(0.60, 2.50)	8	7	1.17	(0.50, 2.30)
CBC-S	32	28	1.14	(0.78, 1.61)	34	28	1.20	(0.83, 1.68)
CBC	41	35	1.17	(0.84, 1.59)	41	35	1.17	(0.84, 1.59)

† : An asterisk is shown next to the CI for Sydney when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of CBC-S.
‡ : An asterisk is shown next to the CI for CBC-S when a statistically significant SMR is significantly higher ($p \leq 0.05$) than the SMR of Sydney.
§ : (95% C.I.) : 95% confidence interval. Note: totals may differ by one due to rounding of expected numbers.

Table 5: Cancer sites with significantly increased SMR in Cape Breton County, 1951-1994; age group: 20 years and over

Cancer site	Males		Females		Both	
	Exc[†]	SMR	Exc	SMR	Exc	SMR
Malignant neoplasms	746	1.16	618	1.16	1364	1.16
Lip	10	2.00				
Esophagus	22	1.19			25	1.16
Stomach	209	1.48	126	1.53	336	1.50
Colon, rectum, intestine NOS*	73	1.11	117	1.18	190	1.15
Colon (years 1969-1994)			39	1.14	49	1.09
Pancreas	77	1.30	58	1.29	135	1.30
Lung and bronchus (years 1958-1994)	240	1.20	86	1.22	325	1.20
Breast			71	1.09		
Cervix uteri			118	1.82		
Leukemias					35	1.12

[†] Exc = excess deaths: observed number of deaths minus expected number.

* NOS = Not otherwise specified.

Note: Excess deaths in "Both" may differ by one due to rounding of expected numbers.

Table 6: Non cancer causes of death with significantly increased SMR in Cape Breton County, 1951-1994; age group: 20 years and over

Cancer site	Males		Females		Both	
	Exc[†]	SMR	Exc	SMR	Exc	SMR
All causes	3998	1.18	2122	1.13	6120	1.16
Tuberculosis	27	1.25				
Endocrine, nutritional, and metabolic diseases and immunity disorders	182	1.45	243	1.48	425	1.47
Diabetes mellitus	169	1.52	237	1.58	406	1.55
Blood and blood-forming organs			17	1.28	28	1.24
Mental disorders	32	1.21				
Neurotic, personality and non-psychotic mental disorders (years 1969-1994)	62	1.87	29	1.73	91	1.82
Alcoholic psychoses, alcohol dependence syndrome, alcohol abuse and accidental poisoning by alcohol	57	1.64				
Non-psychotic mental disorders due to organic brain damage (years 1969-1994)	8	1.68	32	2.71	40	2.30
Nervous system and sense organs	45	1.17	36	1.14	81	1.15
Hereditary, degenerative and other central nervous system	37	1.19	28	1.14	65	1.16
Alzheimer's disease (1979-1994)	18	1.46	34	1.53	52	1.50
Multiple sclerosis			12	1.42		
Diseases of the circulatory system	2241	1.21	1049	1.12	3290	1.17
Essential hypertension	31	1.81	44	1.84	75	1.83
Hypertensive heart disease (1969-1994)			20	1.40	27	1.33
Ischemic heart disease	1379	1.20	561	1.13	1940	1.17
Acute myocardial infarction (years 1969-1994)	1040	1.41	390	1.26	1430	1.35
Cerebrovascular disease (stroke)	311	1.17			376	1.10
Diseases of arteries, arterioles & capillaries	176	1.28	144	1.26	319	1.27
Atherosclerosis	141	1.47	140	1.38	281	1.42
Diseases of respiratory system	445	1.28	139	1.14	585	1.23
Influenza	39	1.62	40	1.58	79	1.60
Chronic bronchitis and emphysema (years 1969-1994)	42	1.18	17	1.26	59	1.20
Asthma	27	1.39	33	1.66	60	1.50
Pneumoconioses	188	12.8				
Coal Worker's pneumoconiosis (years 1962-1994)	35	52.2				
Diseases of the digestive system	120	1.15	59	1.10	178	1.13
Diseases of liver	39	1.12				
Diseases of pancreas	14	1.43				
Diseases of genitourinary system	82	1.20			112	1.16
Diseases of kidney and ureter					45	1.08
Complications of pregnancy, child birth, and the puerperium			15	1.48		
Diseases of the skin and subcutaneous tissue			12	1.65	18	1.56
Congenital Abnormalities			13	1.48	20	1.34

[†] Exc = excess deaths: observed number of deaths minus expected number.
Note: Excess deaths in "Both" may differ by one due to rounding of expected numbers.

Table 7: Cancer sites with a significant gradient† in Cape Breton County excluding Sydney (CBC-S) or significantly increased in CBC-S only relative to Sydney, 1951 - 1994; age group: 20 years and over

	Uncorrected SMR						Corrected SMR					
	Males		Females		Both		Males		Females		Both	
	Exc‡	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR
1) Gradient												
Stomach	177	1.56			268	1.55	195	1.61			295	1.61
Connective tissue	8	1.68					9	1.75			11	1.49
2) CBC-S only												
Lip	7	1.90					8	1.97				
Pancreas									44	1.32		

† Gradient = SMR statistically significantly increased in CBC-S relative to Sydney.
‡ Exc = excess deaths : observed number of deaths minus expected number.

Table 8: Non cancer causes of death with a significant gradient† in Cape Breton County excluding Sydney (CBC-S) or significantly increased in CBC-S only relative to Sydney, 1951-1994; age group: 20 years and over

Cancer site	Uncorrected SMR						Corrected SMR					
	Males		Females		Both		Males		Females		Both	
	Exc‡	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR
1) Gradient												
All causes							3109	1.20	1728	1.15	4835	1.18
Diabetes mellitus									184	1.65		
Diseases of the circulatory system							1884	1.24	1042	1.18	2927	1.21
Essential hypertension			44	2.24	69	2.09			48	2.36	76	2.20
Ischemic heart disease							1114	1.22	498	1.17	1612	1.20
Acute myocardial infarction (years 1969-1994)			303	1.29			820	1.44	375	1.36	1194	1.41
Cerebrovascular disease (stroke)							291	1.22	140	1.10	430	1.16
Diseases of arteries, arterioles & capillaries	154	1.34	144	1.39	298	1.36	187	1.41	172	1.47	359	1.43
Atherosclerosis	133	1.61	138	1.57	272	1.42	152	1.70	158	1.66	311	1.68
Diseases of respiratory system							424	1.37	133	1.20	557	1.30
Bronchitis and emphysema											49	1.15
Pneumoconioses	195	16.8					208	17.8				
Coal Worker's pneumoconiosis (years 1962-1994)	35	71.7					37	75.5				
Diseases of genitourinary system			41	1.20	108	1.21			54	1.26	141	1.28
Diseases of kidney and ureter			26	1.15			37	1.17	37	1.21	74	1.19
Complications of pregnancy, child birth, and the puerperium			17	1.74					19	1.83		
Injury and poisoning							123	1.09				
2) CBC-S only												
Infectious and parasitic diseases							31	1.18			35	1.13
Tuberculosis	20	1.25			22	1.19	25	1.31			30	1.25
Blood and blood-forming organs					20	1.24	14	1.34			25	1.31
Alzheimer's disease (1979-1994)							12	1.41				
Essential hypertension	25	1.89					28	1.99				
Hypertensive heart disease (1969-1994)			16	1.47	20	1.35			19	1.55	24	1.42
Influenza			31	1.66					35	1.75		
Bronchitis and emphysema							35	1.13				
Chronic bronchitis and emphysema (years 1969-1994)	27	1.16					38	1.22	15	1.33	53	1.25
Asthma							19	1.37				
Diseases of pancreas	11	1.45					13	1.53			14	1.34
Diseases of genitourinary system	67	1.22					87	1.28				
Diseases of kidney and ureter					50	1.13						
Diseases of the skin and subcutaneous tissue			9	1.72	14	1.61			10	1.81	16	1.70

† Gradient = SMR statistically significantly increased CBC-S relative to Sydney.
‡ Exc = excess deaths : observed number of deaths minus expected number.

Note: excess deaths in "Both" may differ by one due to rounding of expected numbers.

Table 9: Cancer sites with a significant gradient† in Sydney or significantly increased in Sydney only relative to Cape Breton County excluding Sydney, 1951 - 1994; age group: 20 years and over

	Uncorrected SMR						Corrected SMR					
	Males		Females		Both		Males		Females		Both	
	Exc‡	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR
1) Gradient												
Malignant neoplasms	385	1.31	319	1.28	704	1.29						
Major salivary gland			4	3.77	6	2.63			3	3.43	5	2.39
Tongue, mouth, pharynx	13	1.43			15	1.37						
Esophagus	15	1.52			23	1.53					17	1.39
Colon, rectum, intestine NOS*	53	1.31	61	1.31	114	1.31						
Colon (years 1969-1994)	18	1.40	28	1.31	56	1.35	19	1.28			37	1.23
Lung and bronchus (years 1958-1994)	113	1.35			150	1.35						
Breast			55	1.25								
Prostate	23	1.17										
Multiple myeloma	13	1.74	11	1.64	23	1.69	10	1.58			18	1.54
Myeloid leukemias (years 1969 -1994)	7	1.71										
2) Sydney only												
Esophagus							11	1.39				
Colon, rectum, intestine NOS							33	1.19				
Other neoplasms of skin			5	2.22								
Breast									30	1.13		
Leukemias					21	1.26						

† Gradient = SMR statistically significantly increased in Sydney relative to Cape Breton County excluding Sydney.
‡ Exc = excess deaths : observed number of deaths minus expected number.
NOS* = not otherwise specified.
Note: excess deaths in "Both" may differ by one due to rounding of expected numbers.

Table 10: Non cancer causes of death with a significant gradient[†] in Sydney or significantly increased in Sydney only relative to Cape Breton County excluding Sydney, 1951-1994; age group: 20 years and over

Cancer site	Uncorrected SMR						Corrected SMR					
	Males		Females		Both		Males		Females		Both	
	Exc[‡]	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR
1) Gradient												
All causes	1621	1.28	906	1.17	2527	1.23						
Endocrine, nutritional, and metabolic diseases and immunity disorders	114	2.06			199	1.76	89	1.83				
Diabetes mellitus	107	2.22			184	1.86	85	1.97				
Nutritional deficiencies (years 1953-1994)			5	2.18	9	2.24					7	1.98
Mental disorders	33	1.83	24	1.55	57	1.68	25	1.62	16	1.37	41	1.49
Neurotic, personality and non-psychotic mental disorders (years 1969-1994)	39	3.10	31	3.53	69	3.27	33	2.75	26	3.13	58	2.90
Alcoholic psychoses, alcohol dependence syndrome, alcohol abuse and accidental poisoning by alcohol	40	2.77			44	2.49	33	2.46			36	2.20
Non-psychotic mental disorders due to organic brain damage (years 1969-1994)	8	3.17	28	5.30	35	4.55	7	2.81	24	4.70	30	4.03
Nervous system and sense organs	32	1.44	38	1.47	70	1.46			24	1.30	45	1.29
Hereditary, degenerative and other central nervous system	30	1.56	31	1.50	61	1.53			20	1.33	41	1.35
Alzheimer's disease (1979-1994)			27	2.26	35	2.08			22	2.01	27	1.84
Parkinson's disease	10	1.62			13	1.41						
Motor neurone disease	8	1.95			10	1.66						
Multiple sclerosis			10	2.22	14	2.01					11	1.78
Diseases of the circulatory system	860	1.30			1216	1.21						
Ischemic heart disease	578	1.32	237	1.17	815	1.25						
Acute myocardial infarction (years 1969-1994)	357	1.52										
Asthma			19	2.31	31	1.95						
Diseases of the digestive system	73	1.35	44	1.24	117	1.30						
Diseases of liver	37	1.44	16	1.32	53	1.40					32	1.24
Chronic liver disease and cirrhosis	31	1.41			40	1.33	19	1.25			22	1.18

[†] Gradient = SMR statistically significantly increased in Sydney relative to Cape Breton County excluding Sydney.
[‡] Exc = excess deaths : observed number of deaths minus expected number.
Note: excess deaths in "Both" may differ by one due to rounding of expected numbers.

Table 10: Non cancer causes of death with a significant gradient† in Sydney or significantly increased in Sydney only relative to Cape Breton County excluding Sydney, 1951-1994; age group: 20 years and over

Cancer site	Uncorrected SMR						Corrected SMR					
	Males		Females		Both		Males		Females		Both	
	Exc‡	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR	Exc	SMR
2) Sydney only												
Nervous system and sense organs							20	1.28				
Hereditary, degenerative and other central nervous system							21	1.38				
Alzheimer's disease (1979-1994)	9	1.74							8	1.97		
Multiple sclerosis							23	1.28				
Diseases of liver												
Diseases of the musculoskeletal system and connective tissue					14	1.36						
Congenital abnormalities			7	1.88	10	1.65						

† Gradient = SMR statistically significantly increased in Sydney relative to Cape Breton County excluding Sydney.
‡ Exc = excess deaths : observed number of deaths minus expected number.
Note: excess deaths in "Both" may differ by one due to rounding of expected numbers.